303890

SITE SPECIFIC HEALTH AND SAFETY PLAN

FOR

SUPERIOR BARREL AND DRUM SITE
GLOUCESTER COUNTY, NJ

PREPARED FOR:

U.S. EPA REGION II
2890 WOODBRIDGE AVENUE
EDISON, NJ 08837

CONTRACT NO.: EP-S2-10-01
TASK ORDER NO.: 64

PREPARED BY:

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September 06, 2013

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Date

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Keith Glenn

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Date

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Appendix A: Material Safety Data Sheets (MSDS) – An inventory of all chemicals and products requiring a Safety Data Sheet will be conducted on the Superior Barrel and Drum Site. A Safety Data Sheet will be filed for each item and placed into a folder. As additional products are brought on-site the corresponding SDS will be included in the folder. The location of the SDS folder will be made known to Site personnel during the initial orientation.

1.0 INTRODUCTION AND SITE ENTRY REQUIREMENTS.

1.1. INTRODUCTION

This document describes the health and safety guidelines developed for work to be performed by KEMRON as a USEPA Region II ERRS contractor at the Superior Barrel and Drum Site, located at 798 Jacob Harris Lane in Elk Township, Gloucester County, New Jersey. The plan is designed to provide measures necessary to protect on-site personnel, visitors, and the public from physical harm and exposure to the work to be conducted. The procedures and guidelines contained herein were based upon the best available information at the time of the plan's preparation. Specific requirements will be revised when new information is received, or conditions change. A written amendment will document all changes made to the plan. Any amendments to this plan will be included as attachments. Where appropriate, specific OSHA, EPA standards and/or other guidance will be cited and applied.

1.2. GENERAL SITE SAFETY RULES

The following requirements are standard safe work practices that apply to all site personnel and will be discussed in the safety briefing prior to initiating work on the site:

- All work will be performed in accordance with requirements and procedures described in the KEMRON Corporate Health and Safety Manual.
- Eating, drinking, chewing gum or tobacco, and smoking are prohibited in all work zones.
- The buddy system will be practiced at all times on the Superior Barrel and Drum Site. During site operations, each worker will consider themself as a safety backup to their partner.
- Due to the nature of the Superior Barrel and Drum Site, only intrinsically safe communications will be used. Personnel shall not bring any devices on-site without the expressed permission of the Response Manager.
- No personnel will be admitted to the Contamination Reduction Zone (CRZ) or Exclusion Zone (EZ) without the proper safety equipment, training and medical surveillance certification.
- All personnel must comply with established site and safety procedures. Any staff member who does not comply with any safety policy, as established by the RM/SSO, will be immediately dismissed from the site.
- No loose clothing, rings, jewelry or other personal items shall be worn at the site. Hair shall be cut above shoulder level so not to become an entanglement hazard.
- Facial hair, beyond the corner of the mouth, is prohibited on personnel operating in the EZ who may potentially be required to wear a respirator if the personal protection level is upgraded.
- Proper personal hygiene and decontamination procedures must be followed before leaving the site.
- All employees and visitors must sign in and out of the site in the log book that will be located in the site command post trailer.

1.3 DAILY SAFETY MEETINGS

Daily meetings will be held (at the start of each shift) to ensure that: all personnel understand site conditions and operating procedures; personal protective equipment is being used correctly; and to address any worker health and safety concerns. All new amendments to the Health and Safety Plan will also be reviewed at these meetings. Topics will include: discussions of work activities, potential hazards that may be encountered, and the controls to be implemented to address them. The "tail-gate" meetings will address any changes in work practices or processes, new equipment, or anticipated safety concerns such as inclement weather.

1.4 SITE SAFETY PLAN ACCEPTANCE ACKNOWLEDGEMENT

The RM/SSO shall be responsible for informing all individuals entering the EZ or CRZ of the contents of this HASP and ensuring that each person signs the Safety Plan Acknowledgment Form. By signing the Safety Plan Acknowledgment Form, individuals are recognizing the potential hazards present on-site, and the policies and procedures that are required to minimize exposure or adverse effects of these hazards. Personnel are also thereby acknowledging, agreeing and consenting to all policies, procedures, regulations, rules and site specific requirements of the HASP.

1.5 TRAINING REQUIREMENTS

All personnel entering the EZ or CRZ on the Superior Barrel and Drum Site must have completed training requirements for hazardous site work in accordance with OSHA 29 CFR 1910.120 and Hazard Communication training per 29 CFR 1910.1200. In addition to the 40 hours of classroom training in accordance with 29 CFR 1910.120, all field personnel will receive 8 hours of refresher training on an annual basis. Response Manager shall also have 8 hours of training on safe management of hazardous waste sites. All site employees will have completed required job/task specific training in accordance with OSHA and KEMRON (KEMRON) training requirements. Training requirements may include, but not be limited to: respiratory protection, drum opening and handling, calibration, use and maintenance of monitoring equipment, HazCat testing, PPE, First aid/CPR/AED. The RM will assure that all personnel are properly trained as required prior to job assignment. Records of all required training will be maintained at the employee's home office location. Copies will be provided for site files if required.

Emergency response to potential dangers, such as fires and spills will be discussed with all personnel prior to beginning planned work activities on the Superior Barrel and Drum Site. The RM/SSO shall assign individual team members roles and responsibilities to carry out in the event of an emergency.

All team members shall participate in the initial Site specific emergency response planning and discussion to ensure full understanding of procedures, emergency assembly areas (primary and contingency), personal roles and responsibilities, Site communications, location of emergency equipment / First aid / eye wash stations.

Subcontractors may be used for various segments of the work. Training and certification requirements will be relative to their specific task, and subject to KEMRON determination. Documentation of training requirements is the responsibility of each employer. Each individual must provide evidence of all required training before site entry.

Training Requirements	Type of Training[1]	Personnel to be Trained
Site Specific Health and Safety Plan	R	ALL
Pre-Job Start H&S/SSHASP Briefing	F or C	All
H&S Tailgate Meetings	F	All
General Employee Training (new hire, annual, routine) – KEMRON provided	C	All on site for >10 consecutive days
Site Orientation	C or F	All
40 hr. Hazardous Waste Operations and Emergency Response (HAZWOPER) Class and 24 hr. Supervised Fieldwork	C	General site workers per 1926.65(e)(3)(i).
8-hour HAZWOPER annual refresher	C	All – If about 1 year from the previous 40-hour HAZWOPER or 8-hour refresher training
8-Hour HAZWOPER Supervisor	C	Response Manager, ES&H Representative
Fire Extinguisher	C	At least two field team members
First Aid/Cardiopulmonary Resuscitation (CPR)	C	At least two field team members
Bloodborne Pathogen (BBP) (KEMRON Program)	C	First Aid/CPR Trained Personnel
Personal Protective Equipment (PPE) (Employer's Program and SSHASP)	F	All
Employer Hazard Communication Program	R	All
Drum handling	C/R/F	
Site Specific Emergency Response Training	F	All

[1] Types of Training: **R** = Read Training; **C** = Classroom Training; **F** = Field Training

1.6 MEDICAL MONITORING REQUIREMENTS

All personnel must have completed appropriate required medical monitoring requirements under OSHA 29 CFR 1910.120. Medical surveillance program participants must obtain baseline, annual and exit physical examinations. All personnel must complete medical monitoring before being assigned to the work site. Subcontractors will be used for various segments of work on the Superior Barrel and Drum Site; documentation of medical monitoring is the responsibility of each employer and must be provided prior to site entry. A copy of the medical pass or fail sheet will be kept on file at the site.

1.7 FIT TESTING REQUIREMENTS

All personnel (including visitors) entering the EZ or CRZ using a full-face negative pressure respirator must have successfully passed a qualitative or quantitative respirator fit test for a tight fitting respirator. When a fit factor of greater than 100 is required for an air-purifying respirator, quantitative fit testing shall be performed. Fit testing shall be performed in accordance with OSHA 29 CFR 1910.134 within the last twelve (12) months. Documentation of fit testing is the responsibility of each employer. All personnel shall be determined fit to wear a respirator by a licensed health care professional prior to respirator use and fit testing.

1.8 SITE ORIENTATION TRAINING

All personnel working on the Superior Barrel and Drum Site shall attend a site orientation, which includes a review of the Health and Safety Plan, including site-specific safety rules and requirements. Personnel accessing the site strictly for deliveries or administrative purposes shall not be required to attend the training.

Prior to starting work, each employee will attend a health and safety orientation and will receive information and training which shall include, at a minimum, the following:

- Name of Site Managers and key personnel.
- The location and availability of the written HASP.
- The location and availability of the Material Safety Data Sheets (MSDS) folder.
- Instruction on reading labels and review of Data Sheets.
- Potential hazards that may be encountered on site.
- Decontamination procedures.
- Site layout and location of physical hazards that may be encountered.
- Necessary PPE, training on proper use, storage and task specific levels of protection required for scheduled activities.
- Locations of Emergency phone numbers and map to nearest emergency care facility/hospital/urgent care.
- The importance of the Job Safety Analysis program and participation in the process.
- The site Emergency Action Plan and procedures to follow in the event of an incident.
- Familiarization of work site and location of controlled work zones: Exclusion Zone, Contamination Reduction Zone / Decontamination area, Support Zone and proper decontamination procedures.
- Following the buddy system and Site communications methods. Personnel working in flammable atmospheres will devise a system of communicating with hand signals or other intrinsically safe methods. To be effective, all communication commands must be prearranged and all signals recognized by all on-site personnel in advance.
- Location of first aid kits and fire extinguishers.
- Air monitoring protocol and location results will be posted.

1.9 DELIVERY PERSONNEL AND SUPPORT SUBCONTRACTORS

Personnel whose sole purpose is to deliver goods to the support zone shall not be required to meet the training and medical fitness requirements described in this section. Personnel performing site work strictly within the support zone and clean areas of the site or where safety and health hazards have been removed, shall also not be required to meet the training and medical qualifications but shall attend the Site Orientation Training described in Section 1.8. The site orientation training shall cover the SSHSP including site hazard communication information.

2.0 RESPONSIBLE SITE AUTHORITY

2.1. PROJECT TEAM

Title	Name	Office Location	Cell Phone Number
Response Manager / Site Safety Officer	Gary Beland	KEMRON	404-242-6014
USEPA Region II On Scene Coordinator	Keith Glenn	USEPA Region II	732-321-4454
Regional Health and Safety Manager	Richard C. Hughes	KEMRON	985-640-9254
START Project Manager / Site Leader	Peter Lisichenko	RST	732-585-4411

2.2. PERSONNEL DESCRIPTIONS

2.2.1 EPA On Scene Coordinator

The On Scene Coordinator (OSC) for the Superior Barrel and Drum Site is Keith Glenn. The OSC, as the representative of the U.S. EPA is responsible for overall project administration and for coordinating health and safety standards for all individuals on site at all times. All U.S. EPA, KEMRON Environmental Services Inc., START/RST and contractors' health and safety guidelines and requirements, as well as all applicable OSHA standards shall be applied. The OSC is the overall site safety officer and will be responsible for the health and safety of site visitors. However, each contractor (as an employer under OSHA) is also responsible for the health and safety of its employees. If there is any dispute with regard to health and safety, the following procedures shall be followed:

1. Attempt to resolve the issue on site; and
2. If the issue cannot be resolved, site personnel shall consult off-site health and safety personnel for assistance and the specific task or operation in dispute shall be discontinued until the issue is resolved.

2.2.2 Response Manager / Site Safety Officer

The Response Manager / Site Safety Officer (RM/SSO) on the Superior Barrel and Drum Site is Gary Beland. The RM/SSO is responsible for the progress of the work at the project level. He supervises all project personnel to ensure that all on-site work is performed in compliance with the Work Plan specifications. The Response Manager directs the on-site personnel in correction of any non-conformance found in the work. Responsible for daily implementation of the site specific HASP, including such issues as changes in PPE and training requirements, policy enforcement, and health monitoring and report preparation, among others. The Response Manager is also responsible for preparing decontamination procedures, and recommending equipment, and supplies, and any updates to this information as job site conditions change. The following are the primary responsibilities of this position:

- Prepares and organizes the background review of the work plan and the field team.
- Obtains permission(s) for site access and coordinates activities with appropriate officials.

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- Obtains permission(s) for site access and coordinates activities with appropriate officials.
- Ensures that work plan is completed and remains on schedule.
- Ensures compliance with the HASP.
- Briefs the field teams on their specific assignments.
- Ensures that safety and health requirements are met. Prepares the final reports and support files on the remedial activities.
- Documents field activities.
- Ensures protective clothing used is consistent with the requirements of the HASP.
- Periodically inspects protective clothing and equipment.
- Ensures that PPE is properly stored and maintained.
- Controls entry and exit at the Access Control Points.
- Coordinates safety and health program activities with on-site essential personnel.
- Confirms each team member's suitability for work based on a physician's recommendations.
- Monitors the work parties for signs of work related stressors, such as heat stress, and physical fatigue.
- Monitors and documents on-site hazards and conditions.
- Participates in the preparation of and implementation of the HASP.
- Conducts periodic inspections to determine if the HASP is being followed.
- Enforces the "buddy" work system.
- Ensures decontamination area is set up properly.
- Ensures that all required equipment is available.
- Advises medical personnel of potential exposures and consequences or effects.
- Is aware of emergency procedures, evacuation routes, and the telephone numbers of the plant emergency services, ambulance service, local hospital, poison control center, fire department, and police department.

2.2.3 Field Team Members

All team members are responsible for asking questions to ensure a complete understanding of the site-specific HASP. By signing the Safety Plan Acknowledgment Form, individuals are recognizing the potential hazards present on the Superior Barrel and Drum Site, and expressing understanding in both the hazards and the processes necessary to minimize exposures. Further, individuals are expressing understanding of all site specific policies, procedures, rules and regulations as set forth in this HASP and agreeing to comply with such.

Field Team Members shall:

- Report any unsafe or potentially hazardous conditions to the RM/SSO.
- Comply with rules, regulations, and procedures as set forth in this HASP.
- Express safety ideas or concerns in the daily safety meetings.
- Perform all tasks safely.
- Participate in the hazard analysis process.
- Utilize "Stop Work Authority" if required.

3.0 SITE CHARACTERISTICS

3.0 OBJECTIVES

KEMRON has been tasked to assist in sampling, inventorying, staging, securing and performing hazard categorization on drums/containers containing unknown hazardous substances in preparation for disposal activities. The Site is located at 798 Jacob Harris Lane in Elk Township, Gloucester County, New Jersey. KEMRON will secure the Site, installing temporary caution fence and signage along the eastern boundary of the property to prevent unauthorized access to the site. It is KEMRON's objective to perform these operations in a safe and efficient manner and in accordance with all KEMRON Standard Operating Procedures and all applicable regulations found in 29 CFR 1910.120 and 29 CFR 1926 regulating Hazardous Waste Operations and General Construction.

3.1 SITE DESCRIPTION

The Superior Barrel and Drum Site is located at 798 Jacob Harris Lane in Elk Township, Gloucester County, New Jersey (coordinates 39.6869, -75.132314). The facility consists of a main processing building and numerous trailers located throughout the 5.5 acre property. The entrance to the facility is down a dirt road. The north end of the Site is bordered by Industrial Drum Company, a competitor in the drum reconditioning business. A chain-link fence separates the two properties. Jacob Harris Lane marks the eastern boundary of the Site, beyond which is a densely forested property. To the South are private lands which are also densely wooded with several marshy areas. The Western boundary is indicated by Rt. 55, a major highway. Currently, the facility is inoperable with last known operation activity occurring in 2012. Several companies have been to the property in efforts to remove machinery and equipment. The Site is open to persons traveling along Jacob Harris Lane, a public road. The Site is unsecured from each direction and evidence of trespassers has been noted. All doors of the main building and trailers are open.

The Site consists of two operational areas. The main area is where the permanent steel structure is located. This area would receive containers, rinse the containers, and recondition them for future market. This area is approximately 2.4 acres with containers located throughout. The additional operational area appears to be mainly for storage of full 275-gallon totes and 55-gallon drums, with several trailers holding containers. This area encompasses approximately .32 acres of land. Both areas show signs of impact from leaking containers or dumping of materials.

3.2 SCOPE OF WORK

- Mobilize, establish safe site access, temporary facilities, power, lighting, and communications.
- Improve site security, install temporary caution fence and signage along the eastern boundary of the property along Jacob Harris Lane to limit and prevent unauthorized access to the site.
- Identify containers that will be sampled.
- Establish a staging area for containers to be brought for sampling.

- Establish a staging area for containers to be brought for sampling.
- Assist in the opening of containers and collection of contents.
- Perform hazardous characteristics (HazCat) of material collected in the field.
- Stabilize containers that are leaking and prepare for container integrity to fluctuate as they are moved.
- Provide appropriate fire suppression mechanisms for working with unknown contents.
- Properly stage and segregate drums/containers into proper hazard classes, in preparation for off-site disposal following Haz-Cat activities.
- Properly decontaminate reusable equipment utilized in the above activities.
- Properly store and dispose of used/contaminated PPE.
- Complete Project Closeout/ Demobilization.

3.3 RST START SCOPE OF WORK

- START will perform all sampling of drums/containers
- Documentation of Site activities and conditions.
- Perform Site air monitoring

NEEDS UPDATED

4.0 PERSONAL PROTECTION EQUIPMENT

4.1 DESCRIPTION OF PROTECTION LEVELS

The primary level of protection on the Superior Barrel and Drum Site wil[illegible] protection utilizing SCBAs during initial characterization. Downgrades will be based on air monitoring performed by RST and Site specific conditions. Level C respiratory protection will consist of full face respirators with organic vapor/acid gas/P-100 cartridges.

4.1.1 Level B

EQUIPMENT REQUIRED:

- Positive pressure, full-face piece SCBA
- Chemical-resistant suit, Saranex® coveralls with taped seams, elastic hoods, wrists, and ankles (hoods will be taped to respirator face pieces)
- Coveralls/ Uniform
- Chemical-resistant steel toe boots, Chemical resistant over boots (taped)
- Hard hat
- One pair of 4-mil nitrile inner gloves
- One pair of 15-mil nitrile outer gloves (gloves will be taped to the outer suit)
- Hearing protection when necessary.
- Two way communication device.

- Kevlar outer gloves when potential for lacerations, sharp items, edges of drums.

PROTECTION PROVIDED:
The provided protection is the same level of respiratory protection as Level A but less skin protection. It is minimum level recommended for initial site entry until the hazards have been further identified.

SHOULD BE USED WHEN:

The type and atmospheric concentration of substances have been identified and require a high level of respiratory protection, but less skin protection. This involves atmospheres with Immediately Dangerous to Life and Health (IDLH) concentrations of specific substances that do not represent a severe skin hazard;

- Atmosphere does not meet the criteria for use of air-purifying respirators,
- Presences of incompletely identified vapors or gases are not suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the intact skin.

LIMITING CRITERIA:
- Use only when the vapor or gases present are not suspected of containing high concentrations of chemicals that are harmful to skin or capable of being absorbed through the intact skin.
- Increased heat stress and reduced visibility.

4.1.2 Level C

EQUIPMENT REQUIRED:
- Full Face Air purifying Respirator with Organic Vapor/Acid Gas/P-100 cartridge.
- Tyvek Suit
- Tyvek Hood
- Inner (sample gloves) and outer (cloth, leather or chemical-resistant) gloves depending on the application.
- Disposable boot covers
- Hard hat
- Two-way radio communications
- Eye Protection
- Noise Protection

OPTIONAL:
- Face shield

- Modified Level C adds an outer chemical resistant suit.

PROTECTION PROVIDED:
The same level of skin protection as Level B, but a lower level of respiratory protection.

SHOULD BE USED WHEN:
- The atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any exposed skin.
- The types of air contaminants have been identified, concentrations measured, and a cartridge is available that can remove the contaminant.
- All criteria for the use of air-purifying respirators are met.

LIMITING CRITERIA:
- Atmospheric concentration of chemicals must not exceed IDLH levels.
- The atmosphere must contain at least 20.0 percent oxygen.

4.1.3 Modified Level D

Note: Modified Level D is the minimum level of protection acceptable for use in Support Zone areas.

EQUIPMENT REQUIRED:
- Chemical resistant clothing when contact with contaminated media is possible (one or two-piece chemical splash suit; disposable chemical-resistant one-piece suit)
- Inner and outer chemical-resistant gloves
- Class II high visibility vest
- Chemical-resistant steel toe boots
- Hard hat
- Safety Glasses w/ Side Shields
- Two-way radio communications

OPTIONAL:
- Disposable boot covers
- Face shield
- Chemical Splash Goggles
- Hearing Protection when necessary

PROTECTION PROVIDED:
Protection from contact with potentially contaminated surfaces where respiratory hazards have been characterized to below established exposure limits or site action levels.

SHOULD BE USED WHEN:

- The atmosphere contains no known hazard.
- Work functions involve splashes or immersion.
- Modified Level D should be used when no atmospheric hazards exist but potential for dermal exposure is possible.

LIMITING CRITERIA:
- Modified Level D should only be worn where respiratory hazards have been characterized and determined to be below established exposure limits or site action levels.
- May not be used in areas where respiratory hazards exist or may be expected to develop.

4.1.4 Level D

Level D shall be used in any non-contaminated active work area of the site including construction of site support facilities during mobilization and during site restoration and demobilization.

EQUIPMENT REQUIRED:
- Proper fitting long pants in good repair
- Proper fitting work shirt, minimum 4" sleeves
- Steel toe work boots
- Safety glasses w/ Side Shields
- Class II high visibility vest
- Hard hat

OPTIONAL:
- Gloves (Cotton or Leather Palm Work)
- Chemical Splash Goggles
- Face shield
- Hearing Protection when necessary

PROTECTION PROVIDED:
Level D provides minimal skin protection.

SHOULD BE USED WHEN:
- The atmosphere contains no known hazard.
- Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemical.

4.1.5 Task-Specific Levels of Protection

FIELD ACTIVITIES COVERED UNDER THIS PLAN				
TASK DESCRIPTION	**TYPE**	**PRIMARY**	**CONTINGENCY**	**ADDITIONAL INFORMATION(*)**
1. Mobilization/ Setup (General)	Non-Intrusive	D	Modified D	▪ Level D Protection Level
2. Securing the Site	Non-Intrusive	D	Modified D	▪ Level D Protection Level
3. Conducting monitoring operations	Intrusive	B	C	▪ Begin work in Level B PPE with SCBA. ▪ Downgrade to Level C PPE using an organic vapor/acid gas/P-100 HEPA Cartridge based on air monitoring
4. Stabilize drums/containers that are leaking or compromised into over packs.		B	C	▪ Begin work in Level B PPE with SCBA. ▪ Downgrade to Level C PPE using an organic vapor/acid gas/P-100 HEPA Cartridge based on air monitoring
5. Assist in sampling and perform Haz-Cat on drums/containers	Intrusive	B	C	▪ Begin work in Level B PPE with SCBA. ▪ Downgrade to Level C PPE using an organic vapor/acid gas/P-100 HEPA Cartridge based on air monitoring
6. Properly segregate drums /containers into proper hazard classes.	Intrusive	B	C	▪ Begin work in Level B PPE with SCBA. ▪ Downgrade to Level C PPE using an organic vapor/acid gas/P-100 HEPA Cartridge based on air monitoring
7. Stage drums and containers in temporary storage area in proper hazard classifications in preparation for off-site disposal.	Intrusive	B	C	▪ Begin work in Level B PPE with SCBA. ▪ Downgrade to Level C PPE using an organic vapor/acid gas/P-100 HEPA Cartridge based on air monitoring
8. Decontamination	Intrusive Contact	B	C	▪ Wear splash protection ▪ Wear eye protection ▪ All used personal protective equipment shall be properly contained, bagged, and labeled for disposal. ▪ Manage all waste water in approved manner
9. Project Closeout/ Site Restoration	Non-Intrusive	D	Modified D	▪ Level D Protection Level

4.2 RESPIRATORY PROTECTION

This health and safety plan procedure serves as the procedure for the use of respirators on the Superior Barrel and Drum Site. The primary level of protection will be Level B personal protection utilizing SCBA during initial characterization and exposure assessment. Downgrades will be based on air monitoring and Site specific conditions. Level C respiratory protection will consist of full face respirators with organic vapor/acid gas/P-100 cartridges.

4.2.1 Continuing respirator effectiveness

The RM/SSO is responsible for conducting daily site inspections, including special inspections described in the inspections section of this procedure. Daily site inspections shall include surveillance of work place conditions. In particular the following conditions shall be assessed:

1. Potential changes in contaminant concentration;
2. Changes in employee exposure or stress;
3. Respirator effectiveness.

4.2.2 Training

Employees may be trained in a recent 40-hour or Emergency Response training course (within the last year), or a recent 8-hour refresher-training course, which covers the use of respiratory protection (within the last year) and have completed lead awareness training.

4.2.3 Fit Testing

Before site personnel use any respirator with a negative or positive pressure tight-fitting face piece, the individual must be fit tested with the same make, model, style, and size of respirator that will be used. Any modifications to the respirator face piece for fit testing shall be completely removed, and the face piece restored to NIOSH-approved configuration, before that face piece can be used in the workplace.

4.2.4 Fit testing period

Fit test results are good for a period of one year. If an employee using a tight-fitting face piece respirator will be assigned a different respirator face piece (size, style, model or make) the fit testing must be repeated. Fit test results are voided whenever the employee, a supervisor, a safety officer, or program administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to:

- Facial scarring
- Dental changes
- Cosmetic surgery
- Facial Hair

4.2.5 Use of Respirators

Employees are not allowed to use respirators with tight-fitting face pieces under following circumstances:

- Facial hair that comes between the sealing surface of the respirator and the face.
- Any condition that interferes with the ability of the respirator to form a proper seal and / or the valve function to operate properly.
- If an employee wears corrective glasses, obtain the appropriate spectacle kit and have it fitted with prescription lenses

4.2.6 General Inspection and Repairs

Respirators shall be checked for proper function before and after each use and during cleaning prior to exiting the CRZ. Ensure that all cartridges and canisters used are clearly labeled and color-coded with the NIOSH approval label. Respirators that fail an inspection or are otherwise found to be defective should be immediately removed from service. Repairs to respirators are to be made only by persons appropriately trained to perform such operations (this does not include routine adjustments.

4.2.7 Respirator cartridges changes

All cartridge changes must be done in the Contamination Reduction Zone (CRZ). Respirator Organic Vapor/Acid Gas/P-100 filters shall be changed at least every 8 hours (full shift) of use.

Employees shall also be advised that the cartridges must be changed immediately upon any of the following conditions.

- Breathing becomes difficult. This condition is usually caused in dusty conditions as well as areas of high humidity which will cause the cartridge to collect contaminants quicker.
- Manufacturer recommendations must also be consulted to assure proper use and change.

4.2.8 Cleaning and Disinfecting

Whenever respirators are doffed, employees shall wash their faces and respirator face pieces in order to prevent eye or skin irritation. Cleaning shall be accomplished by using soap and water or equivalent cleaning solutions.

4.2.9 Storage

All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals.

5.0 SITE HAZARDS

5.1 CHEMICAL HAZARDS

The chemical hazards on the Superior Barrel and Drum Site are largely unknown and have not been characterized. Drum contents are suspected to contain flammable and combustible liquids/solids/sludges. Due to the lack of information regarding drum contents, personnel will perform initial response in Level B personal protective equipment using SCBAs. Monitoring shall be performed within the work area on site in order to rapidly detect the presence and relative levels of toxic substances and atmospheres. Screening provided by MultiRAE PID and direct-reading instruments shall be used to detect the presence of combustible atmospheres (LEL), oxygen levels, and volatile organic compounds (VOCs). These direct-reading instruments shall be used to determine the most appropriate equipment for further monitoring, and to develop optimum sampling and analytical protocols.

Air monitoring will be performed by RST START personnel. For further information regarding the air monitoring strategy for the Superior Barrel and Drum Site, refer to RST/START documentation.

5.1.1 Chemical Hazards Summary

5.2 PHYSICAL HAZARDS

5.2.1 Slip, Trip, Falls

A thorough hazard assessment will be completed upon mobilization to identify any concerns and hazards onsite and will be continued thereafter proactively. If a hazard cannot be immediately addressed it should be flagged with a ribbon or yellow construction/caution tape to identify the hazard. Properly storing equipment/tools and removing debris and materials from established walking paths are precautions that will be standard operating procedures.

Precautions:

- Stumbling while carrying loads. NEVER carry items in a position that blocks your vision.
- Slips or trips in debris and trash.
- Use footwear with ankle support and soles that grip.
- Don't carry heavy loads, use hauling equipment/drum cart or ask your buddy for assistance.
- Practice good housekeeping.
- Fill in or mark hidden holes in ground in staging area.
- Establish travel paths or walkways through work areas. Keep them clear to minimize trip hazards. Remove dropped objects from pathways immediately.
- Ensure that additional equipment brought to the location does not create or pose additional slip, trip and fall hazards.
- Keep electric cords and cables and pneumatic lines out of travel paths and walkways. If this is not feasible, protect the cord to avoid creating trip hazards and to prevent damage to the cords, cables and lines.

- Establish barriers and/or mark areas around known hazards such as holes and overhead hazards.
- Take extra care when stepping onto unstable or uneven surfaces, and onto surfaces where the hazard cannot be seen (e.g., underwater surfaces).
- Clean up spilled material as soon as practical to avoid creating a slip hazard.
- Install steps and ramps and properly maintain them. Include slip-resistant treads and smooth handrails that will not cause punctures or lacerations.
- Provide sufficient lighting to safely illuminate work areas.
- Closely inspect ladders and steps to ensure steps are free and clear of sediment, grease, oil or debris that could cause a slipping hazard.

5.2.2 Back Strain

Mechanical means of lifting is the most preferred method and should be used whenever possible when handling heavy or bulky loads, particularly drums. When a mechanical means of lifting is not available, proper lifting techniques shall be used. Personnel shall lift with their legs, keeping their backs straight, and loads close to their bodies. Avoid twisting at the waist during lifting. Personnel shall receive help from others when loads appear to be too heavy or bulky.

5.2.3 Overhead Hazards

All power lines shall be treated as live wires until assured safe by the local electric company representatives in the area. Be aware of possible back feed from any generators in the area. If an area is without power, do not assume it will stay without power as the line can be energized while you are in the area. Investigation of a work area must be conducted before any work is to begin. Proper clearances must be maintained at all times. Equipment shall not deviate from established travel ways or work areas where clearances are unknown/ insufficient.

5.2.4 Noise

Areas or equipment emitting noise at or above 85 DBA shall be evaluated to determine feasible engineering controls. When engineering controls are not feasible, administrative controls can be developed and appropriate hearing protection will be provided. A selection of hearing protection will be maintained on site for personnel to choose from and will be maintained in a clean and reliable condition. A good rule of thumb to keep in mind is if you have to raise your voice to talk to coworkers standing only three feet away, you are likely subjected to noise exposures exceeding 85 decibels and should use hearing protection.

5.2.5 Overhead Hazards

A thorough Site wide hazard analysis will be conducted on the Superior Barrel and Drum Site to locate all hazards and areas of concern. This assessment will include locating all overhead hazards, which will be discussed with all personnel prior to beginning any task. Proper clearances must be maintained at all times and will be discussed with all personnel. Equipment shall not deviate from established travel ways or work areas where clearances are unknown/ insufficient.

5.2.6 Heavy Equipment

Skid Steers with drum handling attachments shall be thoroughly inspect prior to use, and only operated by trained and qualified personnel that have been given the express consent of the Response Manager. Daily inspections will insure all safety and operating mechanisms are in place and working properly (i.e., backup alarm, fire extinguisher, brakes, turn signals, flasher, other controls, etc.). This inspection will be documented and kept on file for review. Ground personnel shall communicate with operators before attempting to approach, waiting for the equipment to halt and the operator to signal before proceeding.

5.2.7 Electrical

All electrical devices and generators shall only be operated in areas located at a safe distance from potentially explosive atmospheres, uncategorized drums/containers. Only qualified personnel are authorized to work on electrical circuits or repair any electrical equipment. KEMRON Lock Out-Tag Out procedures shall be used before any servicing or maintenance is performed on any equipment or machine where the unexpected energizing, start-up or release of stored energy could occur and cause injury. The equipment/machine must be isolated from the energy source, rendered inoperative and these procedures clearly communicated to the crew. Extension cords will be inspected daily and damaged cords will be taken out of service immediately. Ground fault circuit interrupters (GFCI) will be used on all temporary electrical circuits (i.e., generators, site trailers, etc.). Electrical cords not specifically made for water submersion will be kept out of wet areas.

5.2.8 Small Quantity Flammable/Combustible Materials

Small quantities of flammable/ combustible materials shall be stored in "safety" cans with appropriate flame arrestors, self-closing lids, and labeled according to their contents. Plastic type fuel cans are not acceptable for any reason.

5.2.9 Material Handling

Various materials and equipment shall be handled manually during project activities, particularly drums and containers. Care should be taken when lifting and handling heavy or bulky items to avoid back injuries. Mechanical means for moving drums shall be used whenever feasible, otherwise personnel shall request assistance in performing the lift.
The following fundamentals address the proper lifting techniques that are essential in preventing back injuries:

- The size, shape, and weight of the object to be lifted must first be considered.
- Multiple employees or the use of mechanical lifting devices are required for heavy objects.
- The anticipated path to be taken by the lifter should be considered for the presence of slip, trip, and fall hazards.
- The feet will be placed far enough apart for good balance and stability (typically shoulder width).
- The worker will get as close to the load as possible. The legs will be bent at the knees.
- The back will be kept as straight as possible and abdominal muscles should be tightened.
- Twisting motions should be avoided when performing manual lifts.

- To lift the object, the legs are straightened from their bending position.
- A worker will never carry a load that cannot be seen over or around.

When placing an object down, the stance and position are identical to that for lifting. The legs are bent at the knees and the object lowered. When two or more workers are required to handle the same object, workers will coordinate the effort so that the load is lifted uniformly and that the weight is equally divided between the individuals carrying the load. When carrying the object, each worker, if possible, will face the direction in which the object is being carried. In handling bulky or heavy items, the following guidelines will be followed to avoid injury to the hands and fingers:

- A firm grip on the object is essential; leather gloves will be used if necessary.
- The hands and object will be free of oil, grease, and water which might prevent a firm grip. The fingers will be kept away from any points that could cause them to be pinched or crushed, especially when setting the object down.
- The item will be inspected for metal slivers, jagged edges, burrs, and rough or slippery surfaces prior to being lifted.

5.2.10 Drum Handling

Initial assessments conducted at the Superior Barrel and Drum Site indicated drums/containers that were observed to be leaking and in poor condition. Monitoring shall be conducted around the drums to monitor breathing zone air quality and to check for flammable/explosive atmospheres prior to handling. Drums shall be visually inspected to gain as much information as possible about the contents and condition of the container prior to handling. Conditions in the immediate vicinity of the drums may provide information about drum contents and their associated hazards. Site personnel shall assume that unlabeled drums contain hazardous materials until their contents are characterized. Also, keep in mind that drums are frequently mislabeled – particularly those that are reused. Thus, a drum's label may not accurately describe its contents. Personnel working within the exclusion zone shall be donned in Level B protection until all site hazards have been fully characterized and air monitoring results indicate a reduction in personal protective equipment may be instituted.

Upon handling/storing any drums, the following actions will be taken:

- Prior to handling drums, all nonessential personnel should leave the area.
- Always approach drums/containers from upwind direction.
- Drum remnants or carcasses containing solid or liquid waste materials that have in some way become compromised, will not be handled/moved until it is determined that it is safe to do so. The drum will then be transferred to a new 55-gallon drum or over-pack, depending on their size, and will be transported to the Drum Storage Area for characterization and storage with similar waste.
- Do not handle any drum that is showing signs of being under pressure as evidenced by bulging, swelling, has severe damage, or for any reason appears to be unsafe, immediately contact the RM / SSO to make a determination on the drum safety.

- Loose waste materials (e.g., rags, waxy residues, used PPE, sorbents) associated with (within or adjacent to) buried drums will be placed into new 55-gallon drums and will be transported to the Drum Storage Area for characterization sampling and off-site disposal.
- Whole drums that contain waste materials (solid, liquid or a combination) will be placed into over-pack containers and will be transported to the Drum Storage Area for characterization and temporary storage with similar waste.
- All equipment and tools must be of a type to prevent sources of ignition (non-sparking, explosion proof, intrinsically safe) and grounding/bonding needs to be considered.
- Areas where drums and containers are staged need to be provided with adequate routes for access and egress from the staging area.
- The potential physical and chemical hazards associated with the drum removal, drum handling tasks are significant. Aside from the potential for inhaling vapors and being splashed from drums improperly secured or damaged, there are significant physical hazards associated with handling drums including:

    1. Being struck by drum parts (removable heads, rings and bungs) thrown by pressurized release of drum contents. Use extreme caution when opening drums/containers, it only takes a couple of pounds of pressure to cause a loosened fitting to fly into the air at significant speed. This projectile can cause injury to site workers on either the way up or the way down. The projectile can puncture adjacent containers or drums, causing rupture and leakage. If the drum or container is filled to or near the level of the opening, product can spew from the opening causing injury to site personnel, formation of hazardous/flammable atmospheres at the work site and/or environmental damage.
    2. Being struck by falling drums.
    3. Contact with sharp metal parts (chimes, rings, etc.).
    4. Strain and overexertion due to inappropriate lifting techniques.
    5. Being caught between drums when loading damaged drums into salvage or over-pack drums and when manually moving drums next to one another.

5.3 ENVIRONMENTAL HAZARDS

Personnel have the potential to be exposed to heat stress during planned work activities on the Superior Barrel and Drum Site. The combination of seasonal temperatures along with the additional heat stress added by higher levels of personal protective equipment could impose high temperatures on site personnel. Personnel shall remain hydrated throughout the work day and take breaks as needed to cope with high temperatures. Heat stress standard operating procedures should be reviewed and followed. Heat stress controls are addressed in detail in the KEMRON Corporate Health and Safety Program.

5.3.1 Heat Stress

The following general precautions are added as guidelines to reduce the potential of work related heat stress and should be followed:

- Training in the prevention and recognition of heat stress symptoms;
- Encourage proper physical fitness and diet in employees;
- Maintain fluid intake (prevent dehydration);
- Avoid alcohol or excessive caffeine consumption.
- Modify, as needed, work schedule and break times.
- Use of the buddy system;
- Availability of shaded and cooled rest areas and personal cooling devices.

Heat Exhaustion

Heat exhaustion is the body's response to an excessive loss of water and salt, usually through excessive sweating. At the first signs, personnel should immediately stop work, get out of the sun and find a cool, shady or air conditioned location to rest. Have the individual drink fluids and monitor very closely.

Symptoms:

- Headache, dizziness, or fainting
- Weakness
- Irritability or confusion
- Extreme thirst, nausea or vomiting

Heat Stroke

Heat stroke is the most serious heat-related disorder. It occurs when the body becomes unable to control its temperature: the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. When heat stroke occurs, the body temperature can rise to 106 degrees Fahrenheit or higher within 10 to 15 minutes.

Symptoms:

- May be confused, unable to think clearly, pass out, collapse, or have seizures
- May stop sweating
- Hallucinations
- Chills
- Slurred speech

Precautions to take if personnel become ill from heat stress

- Immediately call Response Manager / SSO
- Have someone stay with the worker until help arrives
- Move the worker to a cooler/shaded area
- Remove outer clothing, Hard Hat, Vest
- Fan or mist the worker with water; apply ice, ice bags wrapped in towel if air conditioned room or vehicle is not nearby.
- Provide cool drinking water.
- <u>If the worker is not alert, unresponsive, very confused, and stops sweating, immediately call 911 and apply ice as soon as possible.</u>

5.3.2 Severe Weather

The weather will be closely monitored by the response manager and arrangements made to ensure that site personnel are prepared for inclement weather. Anticipated weather conditions will be discussed in the morning safety meetings and any pertinent information will be shared with crew members. During severe weather, any outdoors operations will be stopped under these conditions:

- **Lightning** – If you are close enough to HEAR thunder, you are close enough to be STRUCK by lightning. Storms can move very swiftly and by the time you see lightning in the distance, it could be a lot closer. With this in mind, upon first site of lightning or audible thunder notification to stop work to all crews must be immediate. Crews shall discontinue operations, meet at a predetermined staging area and wait for further instructions.

    - RM, or designee, shall hold work for a minimum of 30 minutes after visible lightning or audible thunder. The 30-minute wait clock will be reset after each additional lightning strike or audible thunder. Work may resume after 30 minutes depending on other conditions.

- **Heavy Precipitation** that affects visibility, mobility, or the overall conditions.

After the heavy weather has left the area, the supervisor will determine that operations can continue in a safe manner. The "all clear" signal will be given and personnel will return to work.

5.3.3 Animals/Insects/Vegetation

Rodents, snakes, spiders, stray animals, stinging insects, poison ivy/sumac/oak are all examples of environmental hazards that may be encountered during daily site operations. Site investigation to identify the hazards before work related activities are essential.

Wasps/hornets/bees and other stinging insects may be encountered on site and may present a serious hazard, particularly to those workers who are allergic. Watch for and avoid nests and keep exposed skin to a minimum. Employees whom are allergic should notify the Response Manager/co-workers prior to starting operations and make known the degree of allergic reactions experienced in the past, and inform others of the location of medicine/shots that need to be taken in the event of being stung. In the event of a bee/wasp sting, monitor the employee, if a stinger is present, remove it carefully with tweezers. Wash and disinfect the wound, cover it, and apply ice. Continue to monitor the employee watching for allergic reaction; contact a doctor immediately if a reaction develops or 911 if the reaction is severe. Be sure to report any bite, sting, or any injury to the Response Manager/SSO.

5.4 TASK HAZARD ANALYSIS PROCESS

Task hazard analysis (THA) is a technique used to identify hazards and hazard controls associated with a specific job function. THAs focus on the relationship between the workers, task, resources required to complete the task, and the work environment. These variables must

be evaluated to identify the potential hazards associated with each task. Once identified, steps can be taken to eliminate, reduce, or control the hazards to an acceptable level of risk. The Activity hazard Analysis included in section 5.6 are provided as the basic structure of the hazard analysis based on the known hazards associated with the individuals tasks that were known at the time they were generated. These analyses should be used as an initial guide to help assess the risks and determine the controls of each major project task. On the day of the activity, the Response Manager/task supervisor/Foreman and the members of the crew shall complete the process by defining the individual steps required to perform the job, the hazards associated with each step, along with the current site specific conditions to accurately determine the appropriate controls and preventive measures for each hazard identified.

This analysis process conducted with the experienced workers and supervisors as a group helps identify previously undetected hazards and increasers the job knowledge of those participating. Safety and health awareness is raised, communication between workers and supervisors is improved, and acceptance of safe work procedures is promoted. Once the activity hazard analysis is completed, generally a rough draft, all personnel involved in the task shall sign the form. After hazards have been systematically identified and controls are developed, the emphasis shifts to methods than can be used to help ensure that all controls stay in place and other hazards do not develop.

5.4.1 Unanticipated Work Activities / Conditions

Operations on the Superior Barrel and Drum Site may require additional tasks not identified or addressed in this HASP. Before performing any task not covered in this HASP, a THA must be prepared by the Job Forman/supervisor along with the crew personnel that will be involved in the task. The Regional Health and Safety Manger should be notified of any major changes in the scope of work or unanticipated developments that may require an amendment to the Health and Safety Plan.

5.5 TASK HAZARD ANALYSIS

TASK DESCRIPTION: Task 1. Mobilization/ Setup

HAZARD ANALYSIS CONDUCTED BY: Richard Hughes **DATE:** September 06, 2013

PHYSICAL HAZARD IDENTIFICATION:

[X] PHYSICAL EXERTION	[X] HEAT STRESS	[o] COLD STRESS	[X] HEAVY EQUIPMENT
[o] FIRE HAZARDS	[X] LIFTING HAZARDS	[X] SLIP, TRIP, OR FALL	[X] HIGH NOISE (> 85 dBA)
[X] OVERHEAD UTILITIES	[o] EXCAVATION/TRENCHING	[o] CONFINED SPACE	[X] POISONOUS PLANTS
[o] POISONOUS/HAZARDOUS ANIMALS	[X] ELECTRICAL	[X] HAND/POWER TOOLS	[X] PUNCTURE/LACERATION
[o] OXYGEN DEFICIENT	[o] PRESSURIZED CONTAINERS	[o] EXPLOSIVE	[o] VISIBILITY
[X] VEHICLE TRAFFIC	[o] WELDING, CUTTING, BRAZING	[o] GLARE/LIGHT HAZARDS	[o] SPLASH
[o] GRINDING	[o] FLYING DEBRIS	[X] PINCH/GRAB/ROLL	[o] TEMPERATURE HAZARDS
[o] OTHER (SPECIFY) : _____			

CHEMICAL HAZARD IDENTIFICATION:

[o] CORROSIVE	[o] VOLATILE	[o] OXIDIZER	[o] TOXIC
[o] RADIOACTIVE	[o] BIOLOGICAL	[o] INERT	[o] REACTIVE
[o] FLAMMABLE	[o] COMBUSTIBLE	[o] NON-HAZARDOUS	[o] POISON A (GAS)
[o] OTHER (SPECIFY) : _____			

PERSONAL PROTECTIVE EQUIPMENT:

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: Level D	None	Proper fitting long pants in good repair; minimum 4" sleeves, Class II high visibility vest	Leather or cotton work-glove.	Hard Hat, Safety Glasses, Hearing Protection,	Steel toe work boot
CONTINGENCY: Modified D	None	Tyvek® Coverall w/Hood	Leather or cotton work-gloves	Hard Hat, Safety Glasses, Hearing Protection,	Steel toe work boot

PPE:	Level D to Modified D	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Physical Exertion/Lifting Hazards	Materials / Equipment	Moderate	Use proper lifting techniques and body mechanics. Avoid attempts to move immovable objects. Use mechanical equipment where possible. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.

PPE:	Level D to Modified D	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Electrocution	Overhead Utilities	Moderate	Identify all on-site utilities prior to any site activities. Ensure that all underground utility markings are clearly visible and maintained throughout the duration of work. Communicate with utility providers before conducting any overhead or underground work. Cease work immediately if utility markers are encountered.
Struck By	Vehicle Traffic/ Unloading Equipment and materials.	Moderate	Locate a flat, level, open area clear of overhead utilities and obstructions to unload equipment and materials, always chock wheels. Personnel shall wear class II high visibility vests. Be alert to material and equipment loading/unloading hazards and moving equipment. Use a spotter to aid in unloading and to watch for overhead and backing hazards, and pedestrian/vehicular traffic.
Lacerations	Site Set-up, repairing fences, hanging signage	Moderate	Always use the correct tool for the job. Inspect hand tools prior to use, wear leather gloves at all times.
Accidents / crash	Personnel Driving to and from project	Moderate	Personnel shall drive defensively at all times. Learn the safest route to and from job site, leave early to allow sufficient time to arrive safely. Contact Regional Health and Safety Manager to report KEMRON personnel driving dangerously.
Crushed/ Pinch Point	Heavy Equipment	Moderate	The use of a ground spotter will be implemented. The ground personnel shall be aware of the equipment's swing radius and pinch points and will stay clear of those areas. No personnel will be carried on equipment not equipped with passenger seats.
Heat Stress	Environment	Moderate	Personnel shall be trained on the signs and symptoms of heat stress. An effective work/rest schedule will be implemented to regulate exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours. The buddy system will be closely followed, personnel keeping a close eye on each other for the signs of heat stress.
Fire/Explosion Hazards	Fueling Equipment	Moderate	Prior to refueling any equipment shut off the engine and allow to cool. Ensure the fueling area is well ventilated. Do not smoke while refueling. Keep open flames and sparks away from area. Do not use gasoline or diesel fuel for cleaning parts. Know where the fire extinguishers are located. Do not leave equipment unattended while fueling. Equipment will not be positioned in dry vegetation in such a manner that could create a fire.
Shock / Electrocution	Electrical Equipment, Extension cords	Moderate	Only licensed electricians will be used to hook up electrical circuits on Site trailers. All extension cords will be inspected before use for damage and removed from service if damage is found. Ground fault circuit interrupters shall be used on all 110-120-240 circuits.

PPE:	Level D to Modified D	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Poisonous/ Hazardous Plants and Animals	Brush, vegetation, fence line, poison ivy, snakes, bees, wasps, ticks, spiders, rodents.	Low	Avoid brushy areas, recognize poison ivy, oak and sumac. Protect skin and mucous membranes when working in proximity to poison ivy. Identify individuals allergic to bees or other environmental hazards.
Puncture / Laceration	Pinch Points, Hand Traps, Debris on-site	Moderate	Proper hand protection will be worn to minimize the possibility of injuries due to cuts and abrasions. Potential pinch points will be identified and marked to avoid injury. Think before placing hands into hazards areas, near moving parts. Use caution negotiating through debris and broken glass in the former plating building.
Hearing Loss	Loud noises	Low	Use of hearing protection will be worn when employees are exposed to high noise levels (greater than 85 dBA over an 8-hour workday). If you have to raise your voice to speak to your co-worker from a distance of approximately 3 feet away in order to be heard / understood, you should wear hearing protection.
Back Injury	Moving equipment, lifting materials	Moderate	Use proper lifting techniques and body mechanics. Avoid attempts to move immovable objects. Use mechanical equipment where possible. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.

TASK DESCRIPTION: Task 2. Securing the Site

HAZARD ANALYSIS CONDUCTED BY: Richard Hughes **DATE:** September 06, 2013

PHYSICAL HAZARD IDENTIFICATION:

[X] PHYSICAL EXERTION	[X] HEAT STRESS	[o] COLD STRESS	[o] HEAVY EQUIPMENT
[X] FIRE HAZARDS	[X] LIFTING HAZARDS	[X] SLIP, TRIP, OR FALL	[o] HIGH NOISE (> 85 dBA)
[X] OVERHEAD UTILITIES	[o] EXCAVATION/TRENCHING	[o] CONFINED SPACE	[X] POISONOUS PLANTS
[o] POISONOUS/HAZARDOUS ANIMALS	[X] ELECTRICAL	[X] HAND/POWER TOOLS	[X] PUNCTURE/LACERATION
[o] OXYGEN DEFICIENT	[o] PRESSURIZED CONTAINERS	[o] EXPLOSIVE	[o] VISIBILITY
[X] VEHICLE TRAFFIC	[o] WELDING, CUTTING, BRAZING	[o] GLARE/LIGHT HAZARDS	[o] SPLASH
[o] GRINDING	[o] FLYING DEBRIS	[X] PINCH/GRAB/ROLL	[o] TEMPERATURE HAZARDS
[o] OTHER (SPECIFY) : _____			

CHEMICAL HAZARD IDENTIFICATION:

[o] CORROSIVE	[o] VOLATILE	[o] OXIDIZER	[o] TOXIC
[o] RADIOACTIVE	[o] BIOLOGICAL	[o] INERT	[o] REACTIVE
[o] FLAMMABLE	[o] COMBUSTIBLE	[o] NON-HAZARDOUS	[o] POISON A (GAS)
[o] OTHER (SPECIFY) : _____			

PERSONAL PROTECTIVE EQUIPMENT:

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: D	None	Appropriate work attire	Leather or cotton work-glove.	Hard Hat, Safety Glasses, Hearing Protection,	Steel toe work boot
CONTINGENCY: Modified D	None	Tyvek® Coverall w/Hood	Leather or cotton work-gloves	Hard Hat, Safety Glasses, Hearing Protection,	Steel toe work boot

PPE:	Level D to Modified D	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Physical Exertion/Lifting Hazards	Materials / Equipment	Moderate	Use proper lifting techniques and body mechanics. Avoid attempts to move immovable objects. Use mechanical equipment where possible. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.
Electrocution	Overhead Utilities	Low	Identify all on-site utilities prior to any site activities.

PPE:	Level D to Modified D	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Struck By	Vehicle/Equipment Traffic	Moderate	Be alert to material and equipment loading/unloading hazards and moving equipment. Use a spotter to aid in unloading and to watch for overhead and backing hazards, and pedestrian/vehicular traffic. Vehicles will obey all speed limits and will be operated in a non-reckless manner. No vehicle will be overloaded or loaded in such a way as to obscure the view of the driver.
Heat Stress	Environment	Low	Personnel shall be trained on the signs and symptoms of heat stress. An effective work/rest schedule will be implemented to regulate weather exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours.
Shock / Electrocution	Electrical Equipment, Extension cords	Low	Ground fault circuit interrupters shall be used on all 110-120-240 circuits. Inspect extension cord before each use, if damaged immediately remove from service.
Puncture / Laceration	Pinch Points, Hand Traps, debris on-site	Moderate	Proper hand protection will be worn to minimize the possibility of injuries due to cuts and abrasions. Potential pinch points will be identified and marked to avoid injury. Think before placing hands into hazards areas, near moving parts.
Hearing Loss	Loud noise	Low	Use of hearing protection will be worn when employees are exposed to high noise levels (greater than 85 dBA over an 8-hour workday). If you have to raise your voice to speak to your co-worker from a distance of approximately 3 feet away in order to be heard / understood, you should wear hearing protection.
Release of stored energy, electrocution	Lock-out Tag-out	Moderate	Prior to performing maintenance or repairs on any equipment, all residual or stored energy must be properly bled off. Once this is accomplished, LOTO controls will be implemented to prevent inadvertent startup of the equipment during maintenance activities

TASK DESCRIPTION: Task 3. Conducting Monitoring

HAZARD ANALYSIS CONDUCTED BY: Richard Hughes **DATE:** September 06, 2013

PHYSICAL HAZARD IDENTIFICATION:

[X] PHYSICAL EXERTION	[X] HEAT STRESS	[o] COLD STRESS	[o] HEAVY EQUIPMENT
[X] FIRE HAZARDS	[X] LIFTING HAZARDS	[X] SLIP, TRIP, OR FALL	[o] HIGH NOISE (> 85 dBA)
[o] OVERHEAD UTILITIES	[o] EXCAVATION/TRENCHING	[o] CONFINED SPACE	[o] POISONOUS PLANTS
[o] POISONOUS/HAZARDOUS ANIMALS	[o] ELECTRICAL	[o] HAND/POWER TOOLS	[X] PUNCTURE/LACERATION
[o] OXYGEN DEFICIENT	[o] PRESSURIZED CONTAINERS	[X] EXPLOSIVE	[X] VISIBILITY
[o] VEHICLE TRAFFIC	[o] WELDING, CUTTING, BRAZING	[o] GLARE/LIGHT HAZARDS	[o] SPLASH
[o] GRINDING	[o] FLYING DEBRIS	[X] PINCH/GRAB/ROLL	[o] TEMPERATURE HAZARDS
[o] OTHER (SPECIFY) : _____			

CHEMICAL HAZARD IDENTIFICATION:

[X] CORROSIVE	[X] VOLATILE	[X] OXIDIZER	[X] TOXIC
[o] RADIOACTIVE	[o] BIOLOGICAL	[o] INERT	[X] REACTIVE
[X] FLAMMABLE	[X] COMBUSTIBLE	[o] NON-HAZARDOUS	[o] POISON A (GAS)
[o] OTHER (SPECIFY) : _____			

PERSONAL PROTECTIVE EQUIPMENT:

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: B	SCBA	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.
CONTINGENCY: C	Full-face respirator with organic vapor/acid gas/P-100 Cartridges	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Atmospheric Hazards	High concentrations of VOC's, explosive atmosphere, Oxygen deficiency,	Moderate	START will perform monitoring for organic vapors, combustible atmospheres, Oxygen deficiency/enrichment using PID, MultiRae, CGI, monitoring devices.

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Slip, Trip, Fall	Debris, changes in elevation, leaking drum contents.	Moderate	A thorough hazard assessment will be conducted in each work area to identify any concerns and hazards. If a hazard cannot be immediately addressed it should be flagged with a ribbon or yellow construction/caution tape to identify the hazard. Properly storing equipment/tools and removing debris and materials from established walking paths are precautions that will be standard operating procedures.
Physical Exertion/Lifting Hazards	Materials / Equipment	Low	Use proper lifting techniques and body mechanics. Avoid attempts to move immovable objects. Use mechanical equipment where possible. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.
Struck By	Vehicle/Equipment Traffic	Moderate	Be alert to equipment / vehicles operating in area. Do not approach operating equipment from operator's blind spot. Personnel shall wear high visibility class II vests at all times.
Heat Stress	Environment	Low	Personnel shall be trained on the signs and symptoms of heat stress. An effective work/rest schedule will be implemented to regulate weather exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours.
Puncture / Laceration	Drums, sharp/rusted edges, debris	Moderate	Proper hand protection will be worn to minimize the possibility of injuries due to cuts and abrasions. Potential pinch points will be identified and marked to avoid injury. Think before placing hands into hazards areas.
Back Injury	Moving equipment, lifting materials	Moderate	Use proper lifting techniques and body mechanics. Avoid attempts to move immovable objects. Use mechanical equipment where possible. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.

TASK DESCRIPTION: Task 4. Stabilizing Drums/Containers Over-packing

HAZARD ANALYSIS CONDUCTED BY: Richard Hughes **DATE:** September 06, 2013

PHYSICAL HAZARD IDENTIFICATION:

[X] PHYSICAL EXERTION	[X] HEAT STRESS	[o] COLD STRESS	[o] HEAVY EQUIPMENT
[X] FIRE HAZARDS	[X] LIFTING HAZARDS	[X] SLIP, TRIP, OR FALL	[o] HIGH NOISE (> 85 dBA)
[o] OVERHEAD UTILITIES	[o] EXCAVATION/TRENCHING	[o] CONFINED SPACE	[o] POISONOUS PLANTS
[o] POISONOUS/HAZARDOUS ANIMALS	[o] ELECTRICAL	[X] HAND/POWER TOOLS	[X] PUNCTURE/LACERATION
[o] OXYGEN DEFICIENT	[o] PRESSURIZED CONTAINERS	[X] EXPLOSIVE	[X] VISIBILITY
[o] VEHICLE TRAFFIC	[o] WELDING, CUTTING, BRAZING	[o] GLARE/LIGHT HAZARDS	[X] SPLASH
[o] GRINDING	[o] FLYING DEBRIS	[X] PINCH/GRAB/ROLL	[o] TEMPERATURE HAZARDS
[o] OTHER (SPECIFY) : _____			

CHEMICAL HAZARD IDENTIFICATION:

[X] CORROSIVE	[X] VOLATILE	[X] OXIDIZER	[X] TOXIC
[o] RADIOACTIVE	[o] BIOLOGICAL	[o] INERT	[X] REACTIVE
[X] FLAMMABLE	[X] COMBUSTIBLE	[o] NON-HAZARDOUS	[o] POISON A (GAS)
[o] OTHER (SPECIFY) : _____			

PERSONAL PROTECTIVE EQUIPMENT:

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: B	SCBA	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.
CONTINGENCY: C	Full-face respirator with organic vapor/acid gas/P-100 Cartridges	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Atmospheric Hazards	High concentrations of VOC's, explosive atmosphere, Oxygen deficiency,	Moderate	START will perform monitoring for organic vapors, combustible atmospheres, and Oxygen deficiency/enrichment using PID/FID, MultiRae, CGI, or other monitoring devices.

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Splash	Drum Handling	Moderate	Drum handling shall only be performed by those properly trained. Unlabeled drums shall be treated as hazardous until properly categorized. Personnel not essential to the task will remain out of the area at a safe distance. It is essential to plan each step of the task, and minimize the handling of drums/containers as much as possible. DO NOT handle drums that appear to be over pressurized, bulging, leaking, or compromised in anyway. Contact RM/SSO for guidance. Follow all proper procedures during over-packing operations to prevent splash, pinch point injuries. Fire extinguishers, spill kits, will be staged in the area prior to sampling. Clear routes will be kept open free of trip hazards and obstructions from the testing area to the decon area, and emergency eye wash / showers.
Slip, Trip, Fall	Leaking Drums, changes in elevation, protruding items.	Moderate	A hazard assessment will be conducted for each work area, each day to locate and address any potential slip/trip hazards, leaking drums, spills, poor housekeeping. Prior to moving drums, walk intended path to locate any potential obstacles, holes, changes in elevation, etc., prior to moving drum/container on cart.
Fire / Explosive cond.	Haz-Cat operations	Moderate	Segregate hazardous substances to ensure incompatible substances pose no threat from reaction, fire, or explosion. Fire extinguishers, spill kits, will be staged in the area prior to sampling. Clear routes will be kept open free of trip hazards and obstructions from the testing area to the decon area, and emergency eye wash / showers. Properly store samples collected for Haz-Cat testing. Place collected sample containers on a flat, stable surface. Do not handle any drum that is showing signs of bulging, severe damage, or for any reason appears to be unsafe, immediately contact the RM / SSO to make a determination on the drum safety.
Physical Exertion/Lifting Hazards	Drum handling / Equipment	Moderate	Use drum cart to move drums. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.
Struck By	Vehicle/Equipment Traffic	Low	Be alert to equipment handling drums and materials. Use a spotter to aid in moving when necessary and to watch for obstacles, backing hazards, and pedestrian/vehicular traffic. Equipment will be operated in a non-reckless manner. Personnel shall wear high visibility class II vests at all times.
Heat Stress	Environment	Low	Personnel shall be trained on the signs and symptoms of heat stress. An effective work/rest schedule will be implemented to regulate weather exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours.

TASK DESCRIPTION: Task 5. Perform Haz-Cat for unknown drum/container contents

HAZARD ANALYSIS CONDUCTED BY: Richard Hughes **DATE:** September 06, 2013

PHYSICAL HAZARD IDENTIFICATION:

[X] PHYSICAL EXERTION	[X] HEAT STRESS	[o] COLD STRESS	[o] HEAVY EQUIPMENT
[X] FIRE HAZARDS	[X] LIFTING HAZARDS	[X] SLIP, TRIP, OR FALL	[o] HIGH NOISE (> 85 dBA)
[o] OVERHEAD UTILITIES	[o] EXCAVATION/TRENCHING	[o] CONFINED SPACE	[o] POISONOUS PLANTS
[o] POISONOUS/HAZARDOUS ANIMALS	[o] ELECTRICAL	[X] HAND/POWER TOOLS	[X] PUNCTURE/LACERATION
[o] OXYGEN DEFICIENT	[X] PRESSURIZED CONTAINERS	[X] EXPLOSIVE	[X] VISIBILITY
[o] VEHICLE TRAFFIC	[o] WELDING, CUTTING, BRAZING	[o] GLARE/LIGHT HAZARDS	[X] SPLASH
[o] GRINDING	[o] FLYING DEBRIS	[X] PINCH/GRAB/ROLL	[o] TEMPERATURE HAZARDS
[o] OTHER (SPECIFY) :			

CHEMICAL HAZARD IDENTIFICATION:

[X] CORROSIVE	[X] VOLATILE	[X] OXIDIZER	[X] TOXIC
[o] RADIOACTIVE	[o] BIOLOGICAL	[o] INERT	[X] REACTIVE
[X] FLAMMABLE	[X] COMBUSTIBLE	[o] NON-HAZARDOUS	[o] POISON A (GAS)
[o] OTHER (SPECIFY) :			

PERSONAL PROTECTIVE EQUIPMENT:

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: B	SCBA	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.
CONTINGENCY: C	Full-face respirator with organic vapor/acid gas/P-100 Cartridges	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Atmospheric Hazards	High concentrations of VOC's, explosive atmosphere, Oxygen deficiency,	Moderate	START will perform monitoring for organic vapors, combustible atmospheres, and Oxygen deficiency/enrichment using PID/FID, MultiRae, CGI, or other monitoring devices.

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Splash	Drum Handling	Moderate	Haz-Cat testing shall only be performed by those who are properly trained. Personnel not essential to the task will remain out of the area. When collecting samples only take the necessary amount required to complete Haz-Cat testing shall be removed from containers. Follow all proper procedures during over-packing operations to prevent splash, pinch point injuries. Fire extinguishers, spill kits, will be staged in the area prior to sampling. Clear routes will be kept open free of trip hazards and obstructions from the testing area to the decon area, and emergency eye wash / showers.
Slip, Trip, Fall	Leaking Drums, debris, changes in elevation, protruding items.	Moderate	A thorough hazard assessment will be conducted in each work area to identify any concerns and hazards. If a hazard cannot be immediately addressed it should be flagged with a ribbon or yellow construction/caution tape to identify the hazard. Properly storing equipment/tools and removing debris and materials from established walking paths are precautions that will be standard operating procedures.
Fire / Explosive cond.	Haz-Cat operations	Moderate	Segregate hazardous substances to ensure incompatible substances pose no threat from reaction, fire, or explosion. Fire extinguishers, spill kits, will be staged in the area prior to sampling. Clear routes will be kept open free of trip hazards and obstructions from the testing area to the decon area, and emergency eye wash / showers. Properly store samples collected for Haz-Cat testing. Place collected sample containers on a flat, stable surface. Do not handle any drum that is showing signs of bulging, severe damage, or for any reason appears to be unsafe, immediately contact the RM / SSO to make a determination on the drum safety.
Physical Exertion/Lifting Hazards	Drum handling / Equipment	Moderate	Use drum cart to move drums. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.
Struck By	Drum parts, removable heads, rings, and bungs.	Moderate	Being struck by drum parts (removable heads, rings and bungs) thrown by pressurized release of drum contents. Use extreme caution when opening drums/containers, it only takes a couple of pounds of pressure to cause a loosened fitting to fly into the air at significant speed. This projectile can cause injury to site workers on either the way up or the way down. The projectile can puncture adjacent containers or drums, causing rupture and leakage. If the drum or container is filled to or near the level of the opening, product can spew from the opening causing injury to site personnel, formation of hazardous/flammable atmospheres at the work site and/or environmental damage

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Heat Stress	Environment	Low	Personnel shall be trained on the signs and symptoms of heat stress. An effective work/rest schedule will be implemented to regulate weather exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours.
Lacerations/cuts	Sharp drum edges, rings, bungs	Moderate	Proper hand protection will be worn to minimize the possibility of injuries due to cuts and abrasions at all times. Use caution when handling drums, inspect containers for sharp edges, use the correct tools. Potential pinch points will be identified and marked to avoid injury. Think before placing hands into hazards areas.

TASK DESCRIPTION: Task 6. Segregate drums /containers into proper hazard classes

HAZARD ANALYSIS CONDUCTED BY: Richard Hughes **DATE:** September 06, 2013

PHYSICAL HAZARD IDENTIFICATION:

[X] PHYSICAL EXERTION	[X] HEAT STRESS	[o] COLD STRESS	[X] HEAVY EQUIPMENT
[X] FIRE HAZARDS	[X] LIFTING HAZARDS	[X] SLIP, TRIP, OR FALL	[X] HIGH NOISE (> 85 dBA)
[X] OVERHEAD UTILITIES	[o] EXCAVATION/TRENCHING	[X] CONFINED SPACE	[o] POISONOUS PLANTS
[o] POISONOUS/HAZARDOUS ANIMALS	[X] ELECTRICAL	[o] HAND/POWER TOOLS	[X] PUNCTURE/LACERATION
[o] OXYGEN DEFICIENT	[o] PRESSURIZED CONTAINERS	[X] EXPLOSIVE	[X] VISIBILITY
[X] VEHICLE TRAFFIC	[o] WELDING, CUTTING, BRAZING	[o] GLARE/LIGHT HAZARDS	[X] SPLASH
[o] GRINDING	[o] FLYING DEBRIS	[X] PINCH/GRAB/ROLL	[o] TEMPERATURE HAZARDS
[o] OTHER (SPECIFY) : _____			

CHEMICAL HAZARD IDENTIFICATION:

[X] CORROSIVE	[X] VOLATILE	[X] OXIDIZER	[X] TOXIC
[o] RADIOACTIVE	[o] BIOLOGICAL	[o] INERT	[X] REACTIVE
[X] FLAMMABLE	[X] COMBUSTIBLE	[o] NON-HAZARDOUS	[o] POISON A (GAS)
[o] OTHER (SPECIFY) : _____			

PERSONAL PROTECTIVE EQUIPMENT:

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: B	SCBA	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.
CONTINGENCY: C	Full-face respirator with organic vapor/acid gas/P-100 Cartridges	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Atmospheric Hazards	High concentrations of VOC's, HCN, explosive atmosphere, Oxygen deficiency,	Moderate	START will perform monitoring for organic vapors, combustible atmospheres, Oxygen deficiency/enrichment using PID, MultiRae, CGI, monitoring devices
Slip, Trip, Fall	Leaking Drums, changes in elevation, protruding items.	Moderate	A hazard assessment will be conducted for each work area, each day to locate and address any potential slip/trip hazards, leaking drums, spills, poor housekeeping. Prior to moving drums, walk intended path to locate any potential obstacles, holes, changes in elevation, etc., prior to moving drum/container on cart.

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Fire / Explosive cond.	Haz-Cat operations	Moderate	Segregate hazardous substances to ensure incompatible substances pose no threat from reaction, fire, or explosion. Fire extinguishers, spill kits, will be staged in the area prior to sampling. Clear routes will be kept open free of trip hazards and obstructions from the testing area to the decon area, and emergency eye wash / showers. Properly store samples collected for Haz-Cat testing. Place collected sample containers on a flat, stable surface. Do not handle any drum that is showing signs of bulging, severe damage, or for any reason appears to be unsafe, immediately contact the RM / SSO to make a determination on the drum safety.
Physical Exertion/Lifting Hazards	Drum handling / Equipment	Moderate	Use drum cart to move drums. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items. Personnel should walk the intended route to the staging area to ensure the area is free from debris and obstacles prior to attempting to move drums on cart.
Struck By	Drum handling Equipment / Traffic	Low	Be alert to equipment handling drums and materials. Use a spotter to aid in moving when necessary and to watch for obstacles, backing hazards, and pedestrian/vehicular traffic. Equipment will be operated in a non-reckless manner. Personnel shall wear high visibility class II vests at all times.
Heat Stress	Environment	Low	Personnel shall be trained on the signs and symptoms of heat stress. An effective work/rest schedule will be implemented to regulate weather exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours.
Shock / Electrocution	Electrical Equipment, Extension cords	Low	Ground fault circuit interrupters shall be used on all 110-120-240 circuits. Inspect extension cord before each use, if damaged immediately remove from service.
Puncture / Laceration	Sharp drum edges, rings, bungs.	Moderate	Proper hand protection will be worn to minimize the possibility of injuries due to cuts and abrasions at all times. Use caution when handling drums, inspect containers for sharp edges, use the correct tools. Potential pinch points will be identified and marked to avoid injury. Think before placing hands into hazards areas.

TASK DESCRIPTION: Task 7. Stage drums/containers in temporary storage area in preparation for off-site disposal

HAZARD ANALYSIS CONDUCTED BY: Richard Hughes **DATE:** September 06, 2013

PHYSICAL HAZARD IDENTIFICATION:

[X] PHYSICAL EXERTION	[X] HEAT STRESS	[o] COLD STRESS	[o] HEAVY EQUIPMENT
[X] FIRE HAZARDS	[X] LIFTING HAZARDS	[X] SLIP, TRIP, OR FALL	[o] HIGH NOISE (> 85 dBA)
[o] OVERHEAD UTILITIES	[o] EXCAVATION/TRENCHING	[o] CONFINED SPACE	[o] POISONOUS PLANTS
[o] POISONOUS/HAZARDOUS ANIMALS	[o] ELECTRICAL	[X] HAND/POWER TOOLS	[X] PUNCTURE/LACERATION
[o] OXYGEN DEFICIENT	[o] PRESSURIZED CONTAINERS	[X] EXPLOSIVE	[X] VISIBILITY
[o] VEHICLE TRAFFIC	[o] WELDING, CUTTING, BRAZING	[o] GLARE/LIGHT HAZARDS	[X] SPLASH
[o] GRINDING	[o] FLYING DEBRIS	[X] PINCH/GRAB/ROLL	[o] TEMPERATURE HAZARDS
[o] OTHER (SPECIFY) :			

CHEMICAL HAZARD IDENTIFICATION:

[X] CORROSIVE	[X] VOLATILE	[X] OXIDIZER	[X] TOXIC
[o] RADIOACTIVE	[o] BIOLOGICAL	[o] INERT	[X] REACTIVE
[X] FLAMMABLE	[X] COMBUSTIBLE	[o] NON-HAZARDOUS	[o] POISON A (GAS)
[o] OTHER (SPECIFY) :			

PERSONAL PROTECTIVE EQUIPMENT:

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: B	SCBA	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.
CONTINGENCY: C	Full-face respirator with organic vapor/acid gas/P-100 Cartridges	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Physical Exertion/Lifting Hazards	Drum Handling	Moderate	Use proper lifting techniques and body mechanics. Avoid attempts to move immovable objects. Use mechanical equipment where possible. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Fire / Explosion Hazards	Staging / moving drums/containers	Moderate	Fire extinguishers will be staged and checked regularly to ensure they are operable in good condition. Drums shall be thoroughly inspected prior to handling. Under no circumstances shall personnel handling any bulging drums.
Injury, pulled muscle, dehydration	Physical Exertion	Moderate	Use proper lifting techniques and body mechanics. Avoid attempts to move immovable objects. Use mechanical equipment where possible. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items. Drink appropriate amount of fluids to stay hydrated.
Crushed/ Pinch Point	Skid Steer/Drum loading equipment	Moderate	Ground personnel shall be aware of the equipment's swing radius and remain out of operators blind spots, avoid pinch points. Be alert to moving equipment loading/unloading. All personnel shall wear class II high visibility vest
Heat Stress	Environment	Low	Personnel shall be trained on the signs and symptoms of heat stress. An effective work/rest schedule will be implemented to regulate weather exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours.
Puncture / Laceration	Pinch Points, Hand Traps	Moderate	Proper hand protection will be worn to minimize the possibility of injuries due to cuts and abrasions. Potential pinch points will be identified and marked to avoid injury. Think before placing hands into hazards areas, near moving parts.
Slips, trips, Falls	Changes in elevation, spilled drum contents, holes, poor housekeeping.	Moderate	A comprehensive hazard analysis shall be conducted in all work areas to locate potential hazards. If slip/trip/fall hazards cannot be immediately addressed the hazard will be marked, barricaded or flagged. Housekeeping rules shall be established and followed.
Hearing Loss	Loud noises	Low	Use of hearing protection will be worn when employees are exposed to high noise levels (greater than 85 dBA over an 8-hour workday). If you have to raise your voice to speak to your co-worker from a distance of approximately 3 feet away in order to be heard / understood, you should wear hearing protection.
Back Injury	Improper body mechanics, failure to use the buddy system or mechanical means of lifting items.	Moderate	Use proper lifting techniques and body mechanics. Avoid attempts to move immovable objects. Use mechanical equipment where possible. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.

TASK DESCRIPTION: Task 8. Project Closeout/Site Restoration

HAZARD ANALYSIS CONDUCTED BY: Richard Hughes **DATE:** September 06, 2013

PHYSICAL HAZARD IDENTIFICATION:

[X] PHYSICAL EXERTION	[X] HEAT STRESS	[o] COLD STRESS	[X] HEAVY EQUIPMENT
[o] FIRE HAZARDS	[X] LIFTING HAZARDS	[X] SLIP, TRIP, OR FALL	[X] HIGH NOISE (> 85 dBA)
[X] OVERHEAD UTILITIES	[o] EXCAVATION/TRENCHING	[o] CONFINED SPACE	[o] POISONOUS PLANTS
[o] POISONOUS/HAZARDOUS ANIMALS	[X] ELECTRICAL	[X] HAND/POWER TOOLS	[X] PUNCTURE/LACERATION
[o] OXYGEN DEFICIENT	[o] PRESSURIZED CONTAINERS	[o] EXPLOSIVE	[o] VISIBILITY
[X] VEHICLE TRAFFIC	[o] WELDING, CUTTING, BRAZING	[o] GLARE/LIGHT HAZARDS	[o] SPLASH
[o] GRINDING	[o] FLYING DEBRIS	[X] PINCH/GRAB/ROLL	[o] TEMPERATURE HAZARDS
[o] OTHER (SPECIFY) : _____			

CHEMICAL HAZARD IDENTIFICATION:

[o] CORROSIVE	[o] VOLATILE	[o] OXIDIZER	[o] TOXIC
[o] RADIOACTIVE	[o] BIOLOGICAL	[o] INERT	[o] REACTIVE
[o] FLAMMABLE	[o] COMBUSTIBLE	[o] NON-HAZARDOUS	[o] POISON A (GAS)
[o] OTHER (SPECIFY) : _____			

PERSONAL PROTECTIVE EQUIPMENT:

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: Level D	None	Proper fitting long pants in good repair; minimum 4" sleeves, Class II high visibility vest	Leather or cotton work-glove.	Hard Hat, and Safety Glasses	Steel toe work boot
CONTINGENCY: Modified D	None	Tyvek® Coverall w/Hood	Leather or cotton work-gloves	Hard Hat, Safety Glasses, Splash protection, and Hearing Protection when necessary	Steel toe work boot, w/ disposable covers.

PPE:	Level D to Modified D	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Physical Exertion/Lifting Hazards	Materials / Equipment	Moderate	Use proper lifting techniques and body mechanics. Avoid attempts to move immovable objects. Use mechanical equipment where possible. Get plenty of rest. Personnel shall use proper lifting techniques such as keeping back straight, using legs to lift, limiting twisting, using mechanical means where possible, and getting help when handling bulky items.

PPE:	Level D to Modified D	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Electrocution	Electrical connections, Extension cords	Moderate	Only qualified personnel are authorized to disconnect electrical circuits or repair any electrical equipment. KEMRON Personnel will under no circumstances attempt to work on electrical systems or disconnect on-site trailers. Ground fault circuit interrupters (GFCI) will be used on all temporary electrical circuits (i.e., generators, site trailers, etc.). Electrical cords not specifically made for water submersion will be kept out of wet areas.
Struck By	Vehicle/Equipment Traffic	Moderate	Always wear reflective vests when exposed to equipment /vehicular traffic. Be alert to material and equipment loading/unloading hazards and moving equipment. Use a spotter to aid in loading equipment and materials. Watch for overhead and backing hazards, and pedestrian/vehicular traffic. Vehicles will obey all speed limits and will be operated in a non-reckless manner. No vehicle will be overloaded or loaded in such a way as to obscure the view of the driver.
Hand injury	Hand Tools	Low	Use all tools in the manner designed. Do not use tools with damaged cords. Wear gloves where required
Vehicular Accident	Driving	Low	Ensure that drivers are driving defensively at all times. KEMRON personnel will observe and obey all traffic safety laws at all times. Prior to demobilization, a final inspection should be conducted on all vehicles and equipment trailers.
Heat Stress	Environment	Low	Personnel shall be trained on the signs and symptoms of heat/cold stress. An effective work/rest schedule will be implemented to regulate weather exposures. Fluids will be provided. Employees will be encouraged to refrain from alcohol use after work hours.
Fire Hazards	Equipment / Materials	Low	Fire extinguishers and all emergency equipment, first-aid kits, eye wash stations will remain staged during demobilization activities.
Poisonous/ Hazardous Plants and Animals	Brush, vegetation, fence line, poison ivy, snakes, bees, wasps, ticks, spiders, rodents.	Low	Avoid brushy areas, recognize poison ivy, oak and sumac. Protect skin and mucous membranes when working in proximity to poison ivy. Identify individuals allergic to bees or other environmental hazards. Plan for contingencies.
Puncture / Laceration	Pinch Points, Hand Traps	Moderate	Proper hand protection will be worn to minimize the possibility of injuries due to cuts and abrasions. Potential pinch points will be identified and marked to avoid injury. Think before placing hands into hazards areas, near moving parts .

PPE:	Level D to Modified D	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Hearing Loss	Loud noise	Low	Use of hearing protection will be worn when employees are exposed to high noise levels (greater than 85 dBA over an 8-hour workday). If you have to raise your voice to speak to your co-worker from a distance of approximately 3 feet away in order to be heard / understood, you should wear hearing protection.
Struck by vehicle / crush by equipment	Equipment / vehicles	Moderate	The use of a ground spotter will be implemented during demobilization activities. Personnel keep safe distance from loading operations, drivers check all mirrors and surroundings before backing, insure all back-up alarms are functional. Park vehicles, equipment and trailers on flat level surface, place wheel chocks.
Puncture/Injection	Pressure washer	Moderate	Personnel must use all necessary precautions while using pressure washers, regardless of the pressures. The use of high-pressure water can cause severe injuries and extreme caution and strict compliance with operating procedures must be followed. Pressure washers may be used on the Superior Barrel and Drum Site during vehicle/equipment decontamination. Personnel will utilize at minimum Modified Level D personal protective equipment when conducting pressure washer operations, along with a full face shield for splash protection and cut resistant metatarsal protection. The following should be observed during use of pressure washers: • Only trained personnel will be allowed to use the equipment. • No portion of the body shall ever be placed in front of the water jet. The jets of water can easily puncture and tear the skin or penetrate deeper causing infection or serious internal damage. • A job review will be made prior to high-pressure water being used. • Manufacturer's recommendations and requirements will be followed. • High-pressure cleaning may require partial body or total entry into tanks with a corresponding increase in PPE and other requirements • Only essential personnel will be allowed in the work area.

6.0 AIR MONITORING

6.1 PURPOSE

The purpose of air monitoring is to identify and airborne contaminants in order to insure that proper levels of respiratory protection and personal protective equipment are being maintained and to determine the size and location of the exclusion, contamination reduction, and support zones. Monitoring shall be performed within the work area on site in order to detect the presence and relative levels of toxic substances and atmospheres. Screening provided by MultiRAE PID and direct-reading instruments shall be used to rapidly detect the presence of combustible atmospheres (LEL), oxygen levels, and volatile organic compounds (VOCs). These direct-reading instruments shall be used to determine the most appropriate equipment for further monitoring, and to develop optimum sampling and analytical protocols.

Air monitoring will be performed by RST START personnel. For further information regarding the air monitoring strategy for the Superior Barrel and Drum Site, refer to RST/STARTs documentation.

6.2 REAL-TIME EXPOSURE MONITORING

Table 6-1 - Monitoring Parameters and Equipment

INSTRUMENT	MANUFACTURER/MODEL*	SUBSTANCES DETECTED
Photo Ionization Detector (PID)	RAE Systems Area RAE RAE Systems V-RAE	Volatile Organic Compounds (VOCs) Semi-Volatile Organic Compounds (SVOCs)
Multi or 4 Gas Detectors	RAE Systems Area-RAE RAE Systems V-RAE	Lower Explosive Limit Oxygen (O_2) Carbon Monoxide (CO) Hydrogen Cyanide (HCN)
Particulate Monitor	DataRam	Aerosols, mist, dust, and fumes
Colorimetric Detector Tubes	Draeger	Acids

6.3 HEALTH AND SAFETY ACTION LEVELS

An action level is a point at which increased protection is required due to the concentration of contaminants in the work area or other environmental conditions. The concentration level (above background level) and the ability of the PPE to protect against that specific contaminant determine each action level. The action levels are based on concentrations in the breathing zone. If ambient levels are measured which exceed the action levels in areas accessible to unprotected personnel, necessary control measures (barricades, warning signs) must be implemented prior to commencing activities at the specific work area.

- Known or suspected presence of dermal hazards.
- Occurrence or likely occurrence of gas, vapor, or dust emission.
- Change in work task that will increase the exposure or potential exposure to hazardous materials.

Reasons to downgrade:

- New information indicating that the situation is less hazardous than was originally suspected.
- Change in site conditions that decrease the potential hazard.
- Change in work task that will reduce exposure to hazardous materials.

Table 6-2 - Monitoring Procedures and Action Levels

PARAMETER	LOCATION AND INTERVAL	RESPONSE LEVEL (Meter units/ppm above background)	RESPONSE
Volatile Organics (Total by PID)*	Prior to initial entry in to impacted areas and then at least every 30 minutes afterwards in the worker's breathing zone or in the immediate work area.	Any response above background to 5ppm (Sustained for more than 5 minutes)	Level C Full face Respirator w/ organic vapor, acid gas/P100 cartridges and continue monitoring.
		>5 to 500pm above background	Level B SCBA
Oxygen Levels (multi-gas detector or O_2 meter)	In the breathing zone/work area	19.5 – 23.5 Percent (%) O_2	Continue work and monitoring. If significant changes exist in this acceptable range, contact the SSO to investigate the potential for contributing factors.
		< 19.5 or > 23.5 Percent (%) O_2	Cease work, exit the work area and contact the RM/SSO.
Explosive Atmospheres (multi-gas detector or CGI)	In the breathing zone/work area prior to and during entry in to container/drum, impacted work area.	< 10% LEL	Continue work activities. If significant changes exist in this acceptable range, contact the RM/SSO to investigate the potential for contributing factors.
		≥ 10% LEL	Cease work, exit the area or confined space, and contact the RM/SSO.

7.0 SITE CONTROL

To prevent migration of contamination from personnel and equipment, work areas will be clearly specified and designated as listed below prior to beginning operations. Each work area will be clearly identified using signs or physical barriers. Access to contaminated areas will be controlled through administrative procedures and barriers. Site controls will be evaluated and revised as needed based upon monitoring results. Work zones will be sketched onto a site drawing, listing the primary and contingency emergency assembly areas and posted at the site where they are readily visible to all personnel. Additionally, work zones and demarcation will be reviewed daily at the tailgate meeting.

- Exclusion Zone
- Contamination Reduction Zone
- Support Zone

A log of all personnel visiting, entering or working on the site shall be maintained by the SSO. No visitor will be allowed in the EZ without showing proof of training and medical certification, per 29 CFR 1910.120(e), (f). Visitors will attend a site orientation given by the SSO and sign the Site Specific SSHSP.

7.1 SUPPORT ZONE

The support zone will be located in an area that has been determined contamination free or "clean" by supporting analytical data or other objective criteria. In this zone site break areas, toilet facilities, administrative, and other support functions will take place. Visitors who do not have appropriate training to enter other project areas will be restricted to this zone.

7.2 CONTAMINATION REDUCTION ZONE

The contamination reduction zone (CRZ) is the area between the exclusion zone and support zone designated for equipment and personnel decontamination. The CRZ may also be a staging area for site tools, emergency equipment, containment equipment, additional PPE, sampling equipment, and air bottle changes. All personnel and/ or equipment exiting the exclusion zone must enter the CRZ for decontamination before entering the support zone. PPE dress outs must be accomplished in the support zone before entry into the CRZ. Contaminated PPE will remain in the CRZ or the exclusion zone until properly disposed. The location of the CRZ will be determined mainly by the distance needed to prevent a potential release, explosion, or other hazard in the exclusion zone from affecting personnel in the CRZ and support zone.

7.3 EXCLUSION ZONE

The exclusion zone is the restricted area where it has been determined by supporting analytical that contamination exists and poses a health hazard. Air monitoring will be conducted on a routine basis to assure adequacy of the extent of the EZ. Only authorized personnel necessary for the performance of the work, and that meet all the requirements as stated in Section 1.0 "Introduction and Site Entry Requirements" of this SSHSP and other applicable requirements of 29 CFR 1910.120 and the KEMRON Corporate Health and Safety Manual are allowed entrance.

The exclusion zone (EZ) will be large enough to encompass the primary task area and to allow equipment and personnel to move about freely and conduct necessary tasks. The minimum number of personnel required to safely perform project tasks will be allowed into the EZ. The EZ will be delineated in a configuration large enough to prevent non-field team personnel in the support zone (SZ) from being exposed to potential safety and health hazards. The EZ shape and size will be based on the tasks being conducted, existing structures and facilities, and potential for impact to adjacent areas from project task and contaminants.
The exclusion zone will be well delineated by means of barricades, caution tape, fencing, or other highly visible and physical barriers. Air monitoring will be conducted on a routine basis to assure adequacy of the extent of the EZ. Signs should be placed at the perimeter of the exclusion zone that are highly visible that states the hazard (i.e., WARNING CONTAMINATED AREA - KEEP OUT or HAZARDOUS WORK AREA - AUTHORIZED PERSONNEL ONLY).

7.4 BUDDY SYSTEM

The Buddy System shall be used for all entries into the exclusion zone. This is a system of organizing employees into work teams in such a manner that each team member can observe the activities of each other. Thus, in case of an emergency, the entire team can account for the location and activity of each team member.

7.5 VISITORS

All visitors will report to the KEMRON command post immediately upon arrival. All visitors entering the CRZ or exclusion zones must provide all required training and medical monitoring documentation before arrival on-site, if possible. The RM/SSO must approve the site visit and shall establish a safe route through the site and away from on-going operations. All visitors will be escorted while on site.

7.6 SITE SECURITY

Site security will be maintained at the project site during all activities to prevent unauthorized personnel from entering the work area. Entry into and exit out of these areas will be controlled through the appropriate use of barriers, signs, and other measures as deemed necessary by the Response Manager.

Site security will include:

1. Protecting unauthorized personnel from site physical hazards or chemical exposure
2. Preventing unauthorized personnel from entering exclusion zone
3. Prevent theft or vandalism of company equipment
4. Notify emergency agencies in case of a fire, explosion, or release after work hours.
5. Maintain site surveillance
6. To ensure all visitors are approved and have valid purpose for entering the site.
7. To ensure that all visitors are escorted

7.7 SITE MAPS

Site maps depicting the work areas, contaminated areas, EZ, CRZ, support zone, command post, and the primary and contingency assembly areas will be developed and posted on site prior to work. The map will include designated work areas, escape routes, emergency assembly areas, hazardous and utility layouts. Additionally, a map depicting the hospital driving route (included as an attachment to this SSHSP) will also be posted at the site and reviewed with personnel during the site orientation.

7.8 SITE COMMUNICATION

Site communications on the Superior Barrel and Drum Site will be conducted using only intrinsically safe methods due to the uncharacterized nature of site contaminants. Personnel working in flammable atmospheres will devise a system of communicating with hand signals or other intrinsically safe methods. To be effective, all communication commands must be prearranged and all signals recognized by all on-site personnel in advance.

As a contingency measure, air horns will be used to alert all on-site personnel to potential emergencies. The below communication commands / signals will be discussed during site orientation and reinforced occasionally during safety meetings to ensure site personnel are familiar with the prearranged signals.

The prearranged air horn signals are as follows:

- 1 Blast - Attention, Contact command post.
- 2 Blasts - Emergency, Assemble at decontamination line.
- 3 Blasts - General Emergency, Evacuate site immediately and meet at the designated assembly area.

7.9 SITE INSPECTIONS

The RM/SSO will conduct site inspections formally on a weekly basis, informally on a daily basis. All formal inspections will be documented and kept on job file for review by the Regional Health and Safety Manager.

7.10 TRAFFIC CONTROL

The RM/SSO shall ensure that traffic patterns and roadways are designed and operated in a manner that minimizes the potential for vehicle related accidents. Key elements that will be considered and reviewed include:

- Minimize the potential for operating vehicles in reverse (i.e., backing)
- Avoid traffic patterns with head-on traffic patterns. Where practical, establish traffic patterns that are circular.
- Minimize intersections when creating traffic plans.

- Avoid areas with overhead obstructions. Where overhead obstructions cannot be avoided, post warning signs and/ or construct warning devices. Warning devices are recommended where traffic includes the use of dump trucks.
- Maintain safe vehicle speeds. Slower traffic speeds should be required at intersections, in curves and in areas where pedestrian traffic is common.
- Instruct all drivers on proper procedures and speed limits.

To ensure adequate control of traffic, all vehicles entering the site shall be required to check in with KEMRON personnel. Only authorized vehicles will be allowed beyond the support zone area. Posted speed limits will be enforced by the KEMRON management team. All vehicles that enter a potentially contaminated area shall be decontaminated before leaving the site.

8.0 DECONTAMINATION

The decontamination process is designed to remove any contamination acquired in the EZ and to keep the spread of contaminated materials from entering the support (clean) area. Care must be exercised to ensure that contaminants are removed from personnel and equipment, before the personnel or equipment leaves the site. The decontamination line should extend from the EZ boundary line to the entrance of the SZ.

8.1 PERSONAL DECONTAMINATION

The method of decontamination which will be utilized on the Superior Barrel and Drum Site will be the orderly and controlled removal of contaminated layers of personal protective clothing and disposing in proper containers. The RM/SSO will ensure that all site personnel are familiar with personnel decontamination procedures as listed below. All personnel wearing PPE in a work area (EZ) must undergo decontamination prior to entering the SZ. Personnel will perform the following decontamination procedures which consist of a series of procedures performed in a specific sequence:

- The first station of the decontamination line will consist of personnel dropping any tools or equipment for later decontamination on provided table or poly sheeting.
- Personnel will then have an amended water rinse applied on the outer suit, gloves and boot covers.
- Disposable boot covers and outer gloves will then be removed and placed in proper containment.
- The protective coveralls will then be removed using slow, sure movements, gently rolling the coveralls down as they are removed. Rolling the coveralls while removing them keeps the contaminant covered side in as it is tightly rolled all the way down to the ankles and removed. The rolled up garment can then be placed directly into the labeled PPE containment drum, followed by the removal of the inner gloves.
- Respirators will be removed last.
- Personnel will then thoroughly wash hands and face before leaving CRZ.
- Disposable protective clothing must be discarded and disposed of properly. All used protective clothing shall be deposited in labeled containers or impermeable bags for proper disposal.

The RM/SSO will be notified immediately of any emergency. An emergency eyewash station capable of providing the OSHA/ANSI required 0.4 gallon/minute flow for 15 minutes will be located at the CRZ and in areas where splash hazards may be present. All site employees will wash hands and face before leaving the decontamination area.

8.2 EQUIPMENT DECONTAMINATION

The decontamination process is designed to remove any contamination acquired in the EZ and to keep the spread of contaminated materials from entering the support area. Care must be exercised to ensure that contaminants are removed from all equipment before leaving the site. All equipment, HazCat / sampling instruments, drum carts and tools that have been contaminated shall be decontaminated prior to leaving the area. If the level of vehicle contamination is low, decontamination may be limited to rinsing tires and wheel wells with an appropriate detergent and water. If the vehicle is significantly contaminated, steam cleaning or pressure washing may be required. Large tools will be cleaned in the same manner.

The following supplies will be available to perform decontamination activities:

- Wash and rinse buckets
- Tap water and phosphate-free detergent (i.e., Alconox)
- Scrub brushes
- Distilled/deionized water
- Pressure washer/steam cleaner
- Paper towels and plastic garbage bags.

All wastewater generated during decontamination will be collected for disposal.

9.0 SANITARY FACILITIES AND LIGHTING REQUIREMENTS

Sanitary facilities, permanent or temporary will be provided on all KEMRON job sites. The requirements for sanitary facilities on site will meet all applicable standards found in CFR 29 1910.120 (n)(3) and the KEMRON operating procedure.

One sanitary facility shall be provided for every 15 employees on the Superior Barrel and Drum Site.

10.0 CONTINGENCY PLAN

10.1 CONTINGENCY PLAN ACTIVATION

The KEMRON contingency plan may be activated by the following conditions:

1. An injury occurs in any of the zones.
2. A chemical hazard action level is reached or an air monitor alarm sounds.
3. Someone observes the development of an IDLH situation.
4. An unknown odor is detected.
5. There is a security breach and/ or presence of unauthorized personnel.

6. There is a weather-related emergency.
7. There is a major release, explosion, or fire.

In case of a project emergency, the following equipment will be used to alert on-site personnel.

1. Only intrinsically safe methods, prearranged and discussed during orientation and daily safety meetings.
2. Portable air horns. If this is used, the following alarm signals will be used:
   - 1 Blast - Attention, Contact command post.
   - 2 Blasts - Emergency, Assemble at decontamination line.
   - 3 Blasts - General Emergency, Evacuate site immediately and meet at designated assembly area.

The designated assembly areas and emergency evacuation routes will be established and posted. All personnel on site will be briefed on all emergency procedures as part of the initial safety briefing.

10.2 EMERGENCY PROCEDURES

10.2.1 CRZ or EZ Injury

Operations will cease, 911 will be called and the area will be cleared for emergency personnel. If the SSO determines it is safe to do so, work party team members will retrieve injured personnel and will decontaminate to the extent possible before movement to support zone. Emergency contacts listed in Section 10.4 will be called immediately for support and to administer aid/care to injured workers. If condition is serious, at least a partial decontamination may be completed. First aid will be administered until professional medical assistance arrives. If movement will aggravate the injury, then the injured personnel will be left in place. If the injured personnel are at a greater risk inside the exclusion zone or emergency personnel are not able to enter the zone, then movement of the injured personnel becomes unavoidable. Care will be exercised to prevent spread of contamination. A copy of the suspected contaminants is to be provided to the responding medical team for transport back to the hospital.

Note: Rescue of downed personnel where the reason of the occurrence is unknown will be performed in the next higher level of Personal Protective Equipment.

10.2.2 Support Zone Injury

The RM/SSO will assess the nature of the injury. If injury does not affect performance of personnel, operations may continue. If injury increases risk to others, operations will cease, until risk is removed or minimized.

10.2.3 PPE Failure

The event of PPE failure or alteration, that person and his/her buddy will immediately leave the exclusion zone and assemble at the decontamination line. Re-Entry will not be permitted until the equipment has been repaired or replaced.

10.2.4 Other Equipment Failure

In the event of equipment failure other than PPE, the RM/SSO shall determine if the problem affects the safety of personnel or prevents the safe completion of the tasks. If the equipment failure poses any manner of risk to the health and safety of personnel the task shall cease until repairs/replacements are made.

10.2.5 Fire or Explosion

Due to the nature and the amount of potentially flammable liquids on the Superior Barrel and Drum Site, explosive vapor conditions will be carefully monitored with direct-reading instruments, measuring the Lower explosive limit (LEL) in all work areas and prior to handling all containers/drums. An adequate multi-purpose (A, B, C) fire extinguisher (20lbs) will be located onsite at each major project task at all times. Fire extinguishers shall not be staged closer than 25' from activities, and no further than 75' feet. Spill kits, eye wash stations, and first aid kits will also be staged and readily available. The locations of these items will be discussed during Site orientation and reinforced during daily safety meetings.

The local fire department will be notified by the Response Manager, supplying the department with the project location, anticipated activities, and other pertinent information in order to provide a more timely response in the event of an emergency. In the event of a fire not involving or in the immediate vicinity of hazardous materials, the RM/SSO will determine if the fire can be suppressed. If the fire is small and can be safely addressed, a team of properly trained personnel will secure the situation. If the event is uncontrollable, involving volatile flammable/explosive liquids, or in the immediate vicinity of, all personnel will be immediately evacuated and the proper authorities will be notified. Emergency response to potential dangers, such as fires and spills will be discussed with all personnel prior to beginning planned work activities on the Superior Barrel and Drum Site. The RM/SSO shall assign individual team members roles and responsibilities to carry out in the event of an emergency. All team members shall participate in the initial Site specific emergency response planning and discussion to ensure full understanding of procedures, emergency assembly areas (primary and contingency), equipment, and personal responsibilities.

10.2.6 Spill, Leak or Release

Operations will cease and all personnel will assemble at the upwind assembly area. If the upwind assembly area is not accessible, personnel in the area will meet at the decontamination line or the designated assembly area depending on the alarm given. The RM/SSO will attempt to determine the nature and extent of the release by air monitoring readings taken by START / KEMRON personnel. The RM/SSO, working with the USEPA OSC will contact regulatory agencies and response teams, if needed. If the spill, leak, or release is of known source and content, contained, minor in nature, and does not produce any off-site impact, the work team may mitigate it using materials and methods on site consistent with the work scope for the project. The RM will direct the crew in making the necessary attempts to stop the release and initiate clean-up operations. Operations will remain suspended until the incident is controlled and contained.

10.3 EMERGENCY EQUIPMENT

The following equipment will be located on the job site:

- First Aid Kit (Office Trailer)
- Emergency Eyewash
- ABC Dry Chemical Fire Extinguishers, located at:
  - Drum and Container HazCat area and Staging Areas
  - Office Trailer
  - Decontamination Area
  - Fuel Storage Areas
  - Each Piece of Equipment on Site

10.4 EMERGENCY TELEPHONE NUMBERS

CHEMTREC	800-424-9300
National Response Center	800-424-8802
National Poison Control Center	800-362-9922
Federal Emergency Management Agency	202-646-2400
Centers for Disease Control	800-232-4636
Poison Control Center	800-222-1222
KEMRON	
KEMRON Environmental Services, Inc.	800-548-6938
KEMRON Response Manager Gary Beland	404-242-6014
KEMRON Regional Health & Safety Manager Richard Hughes	985-640-9254
US Environmental Protection Agency	
US EPA OSC Keith Glenn	
Emergency Services	
Emergency Fire	911
Emergency Police	911
Emergency Medical Services (EMS)	911
Local Non-Emergency Numbers	
Gloucester County, NJ Sheriff's Department	856-384-4600
Gloucester County, NJ Fire Department	856-307-7100
Gloucester County, NJ Department of Public Works & Utilities	856-307-6412
(*) Hospital: Kennedy University Hospital 435 Hurffville-Cross Keys Road Turnersville, NJ 08012	856-582-2500

0.1 mi

6. Turn left onto **Delsea Drive North**

0.4 mi

7. Turn right onto **County Rd 651/Greentree Road**

2.7 mi

8. Turn right onto **County Rd 654/Hurffville Crosskeys Rd**
Destination will be on the left

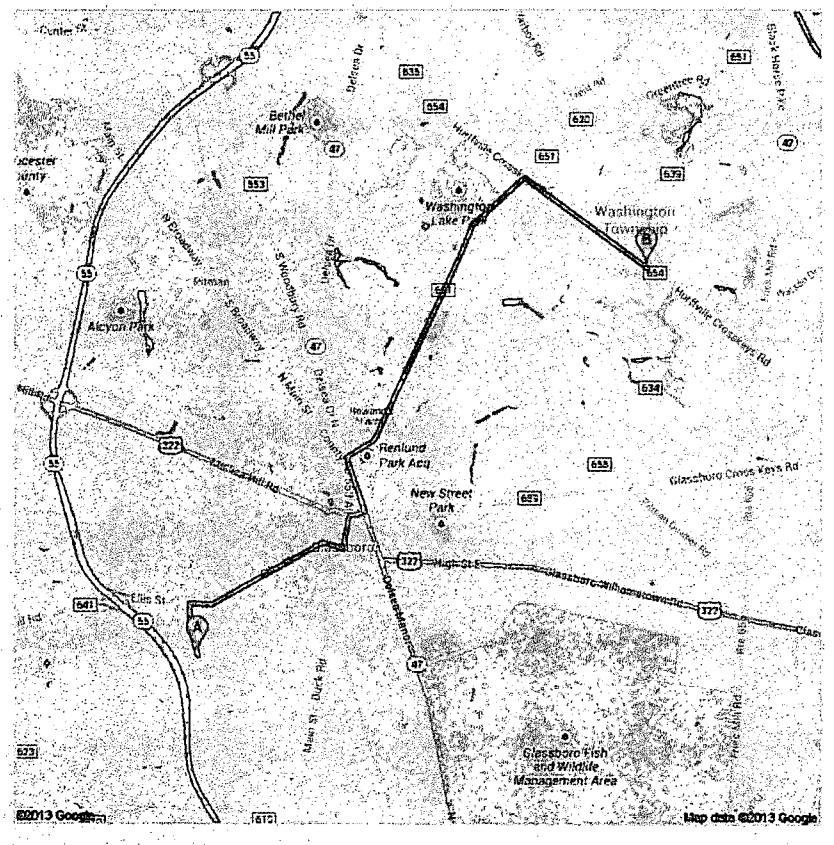
1.2 mi

Kennedy University Hospital
435 Hurffville Crosskeys Road
Washington Township, NJ 08080

10.5 DIRECTIONS TO HOSPITAL

Google

Directions to 435 Hurffville Crosskeys Rd, Sewell, NJ 08080
6.5 mi – about 13 mins
Hospital Directions from the Superior Barrel and Drum Site



Driving directions to 435 Hurffville Crosskeys Rd, Washington Township, NJ 08080 3D2D

Superior Barrel & Drum Site
Jacob Harris Ln
Glassboro, NJ 08028

1. Head **north** on **Jacob Harris Ln** toward **Ellis Street**
   0.4 mi
2. Take the 1st right onto **Ellis Street**
   1.2 mi
3. Turn right onto **High Street West**
   0.2 mi
4. Take the 3rd left onto **County Rd 553 Alt/N Main Street**
   0.3 mi
5. Take the 3rd right onto **West Street**

11.0 SITE SAFETY PLAN REVIEW AND DOCUMENTATION

I have been briefed on and understand this site safety plan. I have been informed of the personnel to contact if I have any questions and know where to report any additional health and safety hazards. I agree to work to the safety plan guidelines and understand that failure to do so could result in removal from the site and/or termination.

DATE	PRINTED NAME	SIGNATURE	ORGANIZATION
9/18/13	Bonnie Hricko	B. Hricko	US EPA
9/18/13	Margaret Gregor	Margaret Gregor	EPA
9/18/13	John Mourtos		KEMRON
9/18/13	John Hatfield		Kemron
9/18/13	Richard DeColli	Richard DeColli	Kemron
9/18/13	Leland J Meadows		KEMRON
9/18/13	Sabrina Greenlee	Sabrina Greenlee	KEMRON
9/23/13	Terry Hallister		KEMRON
10/01/13	FRANK Rodriguez	Frank Rodriguez	Kemron
10/01/13	John Price	John Price	Kemron
10/01/13	Julio Rodriguez	Julio Rodriguez	KEMRON
10-8-13	Curry Clennon		Kemron
10-8-13	Clyde Coleman	Clyde Coleman	KEMRON
10-16-13	Richard Hughes	RC Hughes	KEMRON
11-5-13	GREGORY B. DeANGELIS		EPA
12-2-13	Joe Gonzalez	Joe Gonzalez	Kemron
12-11-13	Steve Cunningham	Steve Cunningham	KEMRON
4/1/14	Ashley Brazil	Ashley Brazil	Kemron

DATE	PRINTED NAME	SIGNATURE	ORGANIZATION

APPENDIX A

SAFETY DATA SHEETS

1.0 INTRODUCTION AND SITE ENTRY REQUIREMENTS.

1.1. INTRODUCTION

This document describes the health and safety guidelines developed for work to be performed by KEMRON as a USEPA Region II ERRS contractor at the Superior Barrel and Drum Site, located at 798 Jacob Harris Road in Elk Township, Gloucester County, New Jersey. The plan is designed to provide measures necessary to protect on-site personnel, visitors, and the public from physical harm and exposure to the work to be conducted. The procedures and guidelines contained herein were based upon the best available information at the time of the plan's preparation. Specific requirements will be revised when new information is received, or conditions change. A written amendment will document all changes made to the plan. Any amendments to this plan will be included as attachments. Where appropriate, specific OSHA, EPA standards and/or other guidance will be cited and applied.

1.2. GENERAL SITE SAFETY RULES

The following requirements are standard safe work practices that apply to all site personnel and will be discussed in the safety briefing prior to initiating work on the site:

- All work will be performed in accordance with requirements and procedures described in the KEMRON Corporate Health and Safety Manual.
- Eating, drinking, chewing gum or tobacco, and smoking are prohibited in all work zones.
- The buddy system will be practiced at all times on the Superior Barrel and Drum Site. During site operations, each worker will consider themself as a safety backup to their partner.
- Due to the nature of the Superior Barrel and Drum Site, only intrinsically safe communications will be used. Personnel shall not bring any devices on-site without the expressed permission of the Response Manager.
- No personnel will be admitted to the Contamination Reduction Zone (CRZ) or Exclusion Zone (EZ) without the proper safety equipment, training and medical surveillance certification.
- All personnel must comply with established site and safety procedures. Any staff member who does not comply with any safety policy, as established by the RM/SSO, will be immediately dismissed from the site.
- No loose clothing, rings, jewelry or other personal items shall be worn at the site. Hair shall be cut above shoulder level so not to become an entanglement hazard.
- Facial hair, beyond the corner of the mouth, is prohibited on personnel operating in the EZ who may potentially be required to wear a respirator if the personal protection level is upgraded.
- Proper personal hygiene and decontamination procedures must be followed before leaving the site.
- All employees and visitors must sign in and out of the site in the log book that will be located in the site command post trailer.

2.1. PROJECT TEAM

Title	Name	Office Location	Cell Phone Number
Response Manager / Site Safety Officer	Gary Beland	KEMRON	404-242-6014
USEPA Region II On Scene Coordinator	Keith Glenn	USEPA Region II	
Regional Health and Safety Manager	Richard C. Hughes	KEMRON	985-640-9254
START Project Manager	TBD	RST	TBA
START Site Leader (SL)	TBD	RST	TBA

2.2. PERSONNEL DESCRIPTIONS

2.2.1 EPA On Scene Coordinator

The On Scene Coordinator (OSC) for the Superior Barrel and Drum Site is Keith Glenn. The OSC, as the representative of the U.S. EPA is responsible for overall project administration and for coordinating health and safety standards for all individuals on site at all times. All U.S. EPA, KEMRON Environmental Services Inc., START/RST and contractors' health and safety guidelines and requirements, as well as all applicable OSHA standards shall be applied. The OSC is the overall site safety officer and will be responsible for the health and safety of site visitors. However, each contractor (as an employer under OSHA) is also responsible for the health and safety of its employees. If there is any dispute with regard to health and safety, the following procedures shall be followed:

1. Attempt to resolve the issue on site; and
2. If the issue cannot be resolved, site personnel shall consult off-site health and safety personnel for assistance and the specific task or operation in dispute shall be discontinued until the issue is resolved.

2.2.2 Response Manager / Site Safety Officer

The Response Manager / Site Safety Officer (RM/SSO) on the Superior Barrel and Drum Site is Gary Beland. The RM/SSO is responsible for the progress of the work at the project level. He supervises all project personnel to ensure that all on-site work is performed in compliance with the Work Plan specifications. The Response Manager directs the on-site personnel in correction of any non-conformance found in the work. Responsible for daily implementation of the site specific HASP, including such issues as changes in PPE and training requirements, policy enforcement, and health monitoring and report preparation, among others. The Response Manager is also responsible for preparing decontamination procedures, and recommending equipment, and supplies, and any updates to this information as job site conditions change. The following are the primary responsibilities of this position:

3.0 SITE CHARACTERISTICS

3.0 OBJECTIVES

KEMRON has been tasked to assist in sampling, inventorying, staging, securing and performing hazard categorization on drums/containers containing unknown hazardous substances in preparation for disposal activities. The Site is located at 798 Jacob Harris Road in Elk Township, Gloucester County, New Jersey. KEMRON will secure the Site, installing temporary caution fence and signage along the eastern boundary of the property to prevent unauthorized access to the site. The drums will then be packaged for shipment and disposal. It is KEMRON's objective to perform these operations in a safe and efficient manner and in accordance with all KEMRON Standard Operating Procedures and all applicable regulations found in 29 CFR 1910.120 and 29 CFR 1926 regulating Hazardous Waste Operations and General Construction.

3.1 SITE DESCRIPTION

The Superior Barrel and Drum Site is located at 798 Jacob Harris Road in Elk Township, Gloucester County, New Jersey (coordinates 39.6869, -75.132314). The facility consists of a main processing building and numerous trailers located throughout the 5.5 acre property. The entrance to the facility is down a dirt road. The north the Site is bordered by Industrial Drum Company, a competitor in the drum reconditioning business. A chain-link fence separates the two properties. Jacob Harris Road marks the eastern boundary of the Site, beyond which is a densely forested property. To the South are private lands which are also densely wooded with several marshy areas. The Western boundary is indicated by Rt. 55, a major highway. Currently, the facility is inoperable with last known operation activity occurring in 2012. Several companies have been to the property in efforts to remove machinery and equipment. The Site is open to persons traveling along Jacob Harris Road, a public road. The Site is unsecured from each direction and evidence of trespassers has been noted. All doors of the main building and trailers are open.

The Site consists of two operational areas. The main area is where the permanent steel structure is located. This area would receive containers, rinse the containers, and recondition them for future market. This area is approximately 2.4 acres with containers located throughout. The additional operational area appears to be mainly storage of full 275-gallon and 55-gallon totes, with several trailers holding containers. This area encompasses approximately .32 acres of land, also holding hundreds of totes and drums. Both areas show signs of impact from leaking containers or dumping of materials.

3.2 SCOPE OF WORK

- Mobilize, establish safe site access, temporary facilities, power, lighting, and communications.
- Improve site security, install temporary caution fence and signage along the eastern boundary of the property along Jacob Harris Lane to limit and prevent unauthorized access to the site.
- Identify containers that will be sampled.

5.0 SITE HAZARDS

5.1 CHEMICAL HAZARDS

The chemical hazards on the Superior Barrel and Drum Site are largely unknown and have not been characterized. Drum contents are suspected to contain flammable and combustible liquids/solids/sludges. Due to the lack of information regarding drum contents, personnel will perform initial response in Level B personal protective equipment using SCBAs. Monitoring shall be performed within the work area on site in order to rapidly detect the presence and relative levels of toxic substances and atmospheres. Screening provided by MultiRAE PID and direct-reading instruments shall be used to detect the presence of combustible atmospheres (LEL), oxygen levels, and volatile organic compounds (VOCs). These direct-reading instruments shall be used to determine the most appropriate equipment for further monitoring, and to develop optimum sampling and analytical protocols.

Air monitoring will be performed by RST START personnel. For further information regarding the air monitoring strategy for the Superior Barrel and Drum Site, See RST/STARTs Air Monitoring Plan.

5.1.1 Chemical Hazards Summary

5.2 PHYSICAL HAZARDS

5.2.1 Slip, Trip, Falls

A thorough hazard assessment will be completed upon mobilization to identify any concerns and hazards onsite and will be continued thereafter proactively. If a hazard cannot be immediately addressed it should be flagged with a ribbon or yellow construction/caution tape to identify the hazard. Properly storing equipment/tools and removing debris and materials from established walking paths are precautions that will be standard operating procedures.

Precautions:

- Stumbling while carrying loads. NEVER carry items in a position that blocks your vision.
- Slips or trips in debris and trash.
- Use footwear with ankle support and soles that grip.
- Don't carry heavy loads, use hauling equipment/drum cart or ask your buddy for assistance.
- Practice good housekeeping.
- Fill in or mark hidden holes in ground in staging area.
- Establish travel paths or walkways through work areas. Keep them clear to minimize trip hazards. Remove dropped objects from pathways immediately.
- Ensure that additional equipment brought to the location does not create or pose additional slip, trip and fall hazards.
- Keep electric cords and cables and pneumatic lines out of travel paths and walkways. If this is not feasible, protect the cord to avoid creating trip hazards and to prevent damage to the cords, cables and lines.

- Loose waste materials (e.g., rags, waxy residues, used PPE, sorbents) associated with (within or adjacent to) buried drums will be placed into new 55-gallon drums and will be transported to the Drum Storage Area for characterization sampling and off-site disposal.
- Whole drums that contain waste materials (solid, liquid or a combination) will be placed into over-pack containers and will be transported to the Drum Storage Area for characterization and temporary storage with similar waste.
- All equipment and tools must be of a type to prevent sources of ignition (non-sparking, explosion proof, intrinsically safe) and grounding/bonding needs to be considered.
- Areas where drums and containers are staged need to be provided with adequate routes for access and egress from the staging area.
- The potential physical and chemical hazards associated with the drum removal, drum handling tasks are significant. Aside from the potential for inhaling vapors and being splashed from drums improperly secured or damaged, there are significant physical hazards associated with handling drums including:

    1. Being struck by drum parts (removable heads, rings and bungs) thrown by pressurized release of drum contents. Use extreme caution when opening drums/containers, it only takes a couple of pounds of pressure to cause a loosened fitting to fly into the air at significant speed. This projectile can cause injury to site workers on either the way up or the way down. The projectile can puncture adjacent containers or drums, causing rupture and leakage. If the drum or container is filled to or near the level of the opening, product can spew from the opening causing injury to site personnel, formation of hazardous/flammable atmospheres at the work site and/or environmental damage.
    2. Being struck by falling drums.
    3. Contact with sharp metal parts (chimes, rings, etc.).
    4. Strain and overexertion due to inappropriate lifting techniques.
    5. Being caught between drums when loading damaged drums into salvage or over-pack drums and when manually moving drums next to one another.

5.3 ENVIRONMENTAL HAZARDS

Personnel have the potential to be exposed to heat stress during planned work activities on the Superior Barrel and Drum Site. The combination of seasonal temperatures along with the additional heat stress added by higher levels of personal protective equipment could impose high temperatures on site personnel. Personnel shall remain hydrated throughout the work day and take breaks as needed to cope with high temperatures. Heat stress standard operating procedures should be reviewed and followed. Heat stress controls are addressed in detail in the KEMRON Corporate Health and Safety Program.

5.3.1 Heat Stress

The following general precautions are added as guidelines to reduce the potential of work related heat stress and should be followed:

TASK DESCRIPTION: Task 4. Stabilizing Drums/Containers Over-packing

HAZARD ANALYSIS CONDUCTED BY: Richard Hughes **DATE:** September 06, 2013

PHYSICAL HAZARD IDENTIFICATION:

[X] PHYSICAL EXERTION	[X] HEAT STRESS	[o] COLD STRESS	[o] HEAVY EQUIPMENT
[X] FIRE HAZARDS	[X] LIFTING HAZARDS	[X] SLIP, TRIP, OR FALL	[o] HIGH NOISE (> 85 dBA)
[o] OVERHEAD UTILITIES	[o] EXCAVATION/TRENCHING	[o] CONFINED SPACE	[o] POISONOUS PLANTS
[o] POISONOUS/HAZARDOUS ANIMALS	[o] ELECTRICAL	[X] HAND/POWER TOOLS	[X] PUNCTURE/LACERATION
[o] OXYGEN DEFICIENT	[o] PRESSURIZED CONTAINERS	[X] EXPLOSIVE	[X] VISIBILITY
[o] VEHICLE TRAFFIC	[o] WELDING, CUTTING, BRAZING	[o] GLARE/LIGHT HAZARDS	[X] SPLASH
[o] GRINDING	[o] FLYING DEBRIS	[X] PINCH/GRAB/ROLL	[o] TEMPERATURE HAZARDS
[o] OTHER (SPECIFY) : _____			

CHEMICAL HAZARD IDENTIFICATION:

[X] CORROSIVE	[X] VOLATILE	[X] OXIDIZER	[X] TOXIC
[o] RADIOACTIVE	[o] BIOLOGICAL	[o] INERT	[X] REACTIVE
[X] FLAMMABLE	[X] COMBUSTIBLE	[o] NON-HAZARDOUS	[o] POISON A (GAS)
[o] OTHER (SPECIFY) : _____			

PERSONAL PROTECTIVE EQUIPMENT:

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: B	SCBA	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.
CONTINGENCY: C	Full-face respirator with organic vapor/acid gas/P-100 Cartridges	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Atmospheric Hazards	High concentrations of VOC's, explosive atmosphere, Oxygen deficiency,	Moderate	START will perform monitoring for organic vapors, combustible atmospheres, Oxygen deficiency/enrichment using PID/FID, MultiRae, CGI, monitoring devices.

TASK DESCRIPTION: Task 5. Perform Haz-Cat for unknown drum/container contents

HAZARD ANALYSIS CONDUCTED BY: Richard Hughes **DATE:** September 06, 2013

PHYSICAL HAZARD IDENTIFICATION:

[X] PHYSICAL EXERTION	[X] HEAT STRESS	[o] COLD STRESS	[o] HEAVY EQUIPMENT
[X] FIRE HAZARDS	[X] LIFTING HAZARDS	[X] SLIP, TRIP, OR FALL	[o] HIGH NOISE (> 85 dBA)
[o] OVERHEAD UTILITIES	[o] EXCAVATION/TRENCHING	[o] CONFINED SPACE	[o] POISONOUS PLANTS
[o] POISONOUS/HAZARDOUS ANIMALS	[o] ELECTRICAL	[X] HAND/POWER TOOLS	[X] PUNCTURE/LACERATION
[o] OXYGEN DEFICIENT	[X] PRESSURIZED CONTAINERS	[X] EXPLOSIVE	[X] VISIBILITY
[o] VEHICLE TRAFFIC	[o] WELDING, CUTTING, BRAZING	[o] GLARE/LIGHT HAZARDS	[X] SPLASH
[o] GRINDING	[o] FLYING DEBRIS	[X] PINCH/GRAB/ROLL	[o] TEMPERATURE HAZARDS
[o] OTHER (SPECIFY) : _____			

CHEMICAL HAZARD IDENTIFICATION:

[X] CORROSIVE	[X] VOLATILE	[X] OXIDIZER	[X] TOXIC
[o] RADIOACTIVE	[o] BIOLOGICAL	[o] INERT	[X] REACTIVE
[X] FLAMMABLE	[X] COMBUSTIBLE	[o] NON-HAZARDOUS	[o] POISON A (GAS)
[o] OTHER (SPECIFY) : _____			

PERSONAL PROTECTIVE EQUIPMENT:

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	PROTECTIVE CLOTHING	GLOVES	HEAD/FACE/EYE PROTECTION	FOOT PROTECTION
PRIMARY: B	SCBA	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.
CONTINGENCY: C	Full-face respirator with organic vapor/acid gas/P-100 Cartridges	Tyvek® SL, (all seams must be taped/sealed)	Stansolve AK22 nitrile or equivalent gloves. May add leather outer glove if task requires.	Hard Hat, Safety Glasses, Hearing Protection if noise hazard present.	Steel toe rubber boots/booties with taped seams.

PPE:	Level B to Level C	**Date:**	September 06, 2013
Hazard Rating:	Medium	**Created by:**	Richard C. Hughes
HAZARD	**SOURCE**	**SEVERITY**	**CONTROL MEASURES**
Atmospheric Hazards	High concentrations of VOC's, explosive atmosphere, Oxygen deficiency,	Moderate	START will perform monitoring for organic vapors, combustible atmospheres, Oxygen deficiency/enrichment using PID/FID, MultiRae, CGI, monitoring devices.

6.0 AIR MONITORING

6.1 PURPOSE

The purpose of air monitoring is to identify and airborne contaminants in order to insure that proper levels of respiratory protection and personal protective equipment are being maintained and to determine the size and location of the exclusion, contamination reduction, and support zones. Monitoring shall be performed within the work area on site in order to detect the presence and relative levels of toxic substances and atmospheres. Screening provided by MultiRAE PID and direct-reading instruments shall be used to rapidly detect the presence of combustible atmospheres (LEL), oxygen levels, and volatile organic compounds (VOCs). These direct-reading instruments shall be used to determine the most appropriate equipment for further monitoring, and to develop optimum sampling and analytical protocols.

Air monitoring will be performed by RST START personnel. For further information regarding the air monitoring strategy for the Superior Barrel and Drum Site, See RST/STARTs Air Monitoring Plan.

6.2 REAL-TIME EXPOSURE MONITORING

Table 6-1 - Monitoring Parameters and Equipment

INSTRUMENT	MANUFACTURER/MODEL*	SUBSTANCES DETECTED
Photo Ionization Detector (PID)	RAE Systems Area RAE RAE Systems V-RAE	Volatile Organic Compounds (VOCs) Semi-Volatile Organic Compounds (SVOCs)
Multi or 4 Gas Detectors	RAE Systems Area-RAE RAE Systems V-RAE	Lower Explosive Limit Oxygen (O_2) Carbon Monoxide (CO) Hydrogen Cyanide (HCN)
Particulate Monitor	DataRam	Aerosols, mist, dust, and fumes
Colorimetric Detector Tubes	Draeger	Acids

6.3 HEALTH AND SAFETY ACTION LEVELS

An action level is a point at which increased protection is required due to the concentration of contaminants in the work area or other environmental conditions. The concentration level (above background level) and the ability of the PPE to protect against that specific contaminant determine each action level. The action levels are based on concentrations in the breathing zone. If ambient levels are measured which exceed the action levels in areas accessible to unprotected personnel, necessary control measures (barricades, warning signs) must be implemented prior to commencing activities at the specific work area.

Reasons to upgrade: